

THE IRON AGE

A Review of the Hardware, Iron, Machinery, ^{Washington D C} ^{Institute} ^{Smithsonian Institution} ¹⁸⁹³ ^{ades.}

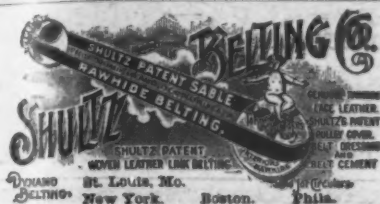
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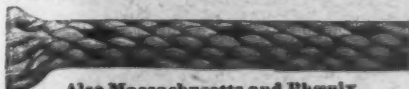


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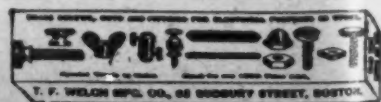
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THE IRON AGE

THURSDAY, MARCH 6, 1902

The Renold Silent Chain in a Structural Shop.

With the recognition of the desirability of the electric motor as a means of driving machine tools has also arisen the problem of the best way to connect the motor to the tool or machine which is to be driven. This question has been sufficiently serious where new tools were to be designed especially for motor driving, but the problem is even more complicated where belt driven tools are to be adapted to electric power.

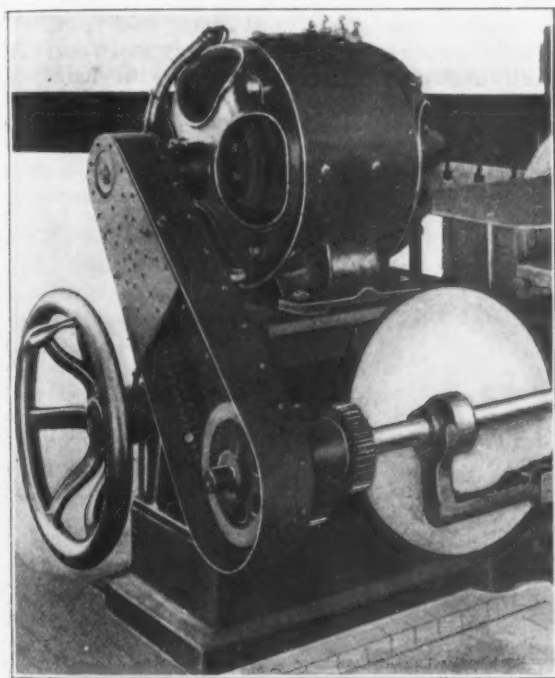
The adaptability of the Renold silent chain, introduced by the Link-Belt Engineering Company of Philadelphia, for work of this character appears to be well established. It is noiseless, does not require fixed centers and there is no sliding friction on the teeth. It also permits the use of the standard high speed motor.

The cuts here presented show this chain as applied

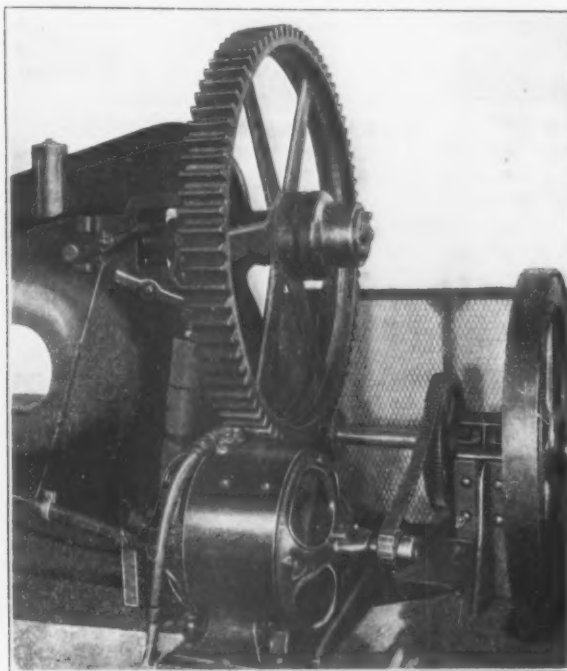
manifest. This applies to the action of trades union men in England, for they are prolific in surprises. In a certain locality the men struck for a trifling matter and were discharged, the proprietors engaging non-union men. Suit was at once brought against the owners of the works, ordering them to show cause for depriving the men of their living!

Oil vs. Coal for Fuel Purposes.

It would seem a very simple question to ascertain the relative values of oil and coal for commercial fuel purposes, but there is a very great diversity of opinion upon the subject, and the testimony for and against is so contradictory that a verdict cannot be rendered for either. Despite all the elaborately careful experiments made by various governments to fix the value of oil it



Driving Cold Saw.



Driving Punch.

THE RENOLD SILENT CHAIN IN A STRUCTURAL SHOP.

to machines in the works of the Link-Belt Company. Originally all these tools were belt driven, and the change from belt to motor drive was made without the loss of an hour. It will be observed that the motors in all cases rest on brackets secured to the frames of the machines, making the tools entirely self contained. This makes it possible to move the tools about the shop as may be necessary, without disturbing the relative position of tool or motor. This rigid support of the motor is not made necessary by the use of the chain, however. If portability were not desired the motors might have been bolted to the floor, and this has, in fact, been done in many cases. The simplicity of this method is in marked contrast to the rigid support necessary for spur gearing. The ease with which this chain adapts itself to varying conditions is clearly shown.

Sir Charles Grandison is credited with saying that bores had great charms for him, in that he could never tell what particular form of annoyance they would

is not used to any extent by the naval powers, coal still having the preference, notwithstanding all the drawbacks of dirt, space and force required to handle it. It is not the difficulty of getting good fires, or dangers of spontaneous combustion that delay the general use of oil, it is simply that in daily use—oil against coal—those who pay the bills continue to use coal, and to do this there must be a balance in its favor.

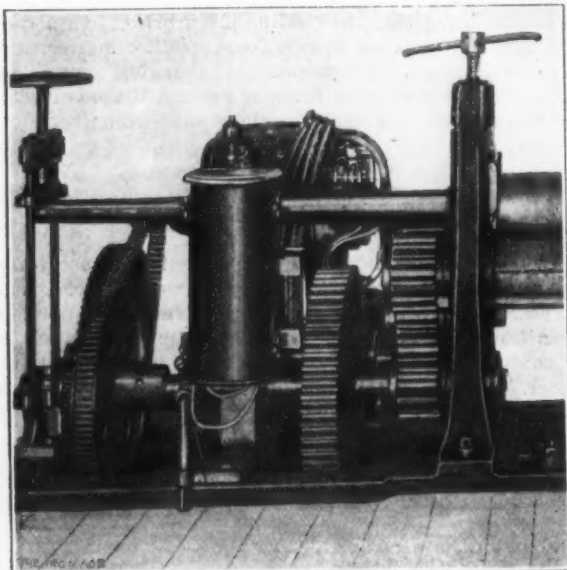
One foreign steamship company—the Shell Line of England—have declared unhesitatingly for oil after two years' experience in the use of it. One vessel of this line, the "Clam," has run 85,000 miles with oil fuel, and can stow 4,500 tons of it. It is carried in well-holds reaching from the double bottom to the under deck, and the success of the "Clam" has been so marked that there are four other ships building which will each carry 11,500 tons of oil fuel, or for commercial purposes. These vessels, when not needed for oil freight, can have their holds thoroughly disinfected by the admission of live steam, after which they are wiped down and white-washed, removing every trace of the smell attending

petroleum. The Shell Line has been carrying Borneo oil previously, but a portion of the fleet has loaded Texas oil, and a large cargo of it recently arrived in England. It can be delivered there in bulk for a little under \$9 a ton of 2,250 pounds, which, as compared with coal, cannot be called cheap. The parties interested in the enterprise point out that oil is relatively

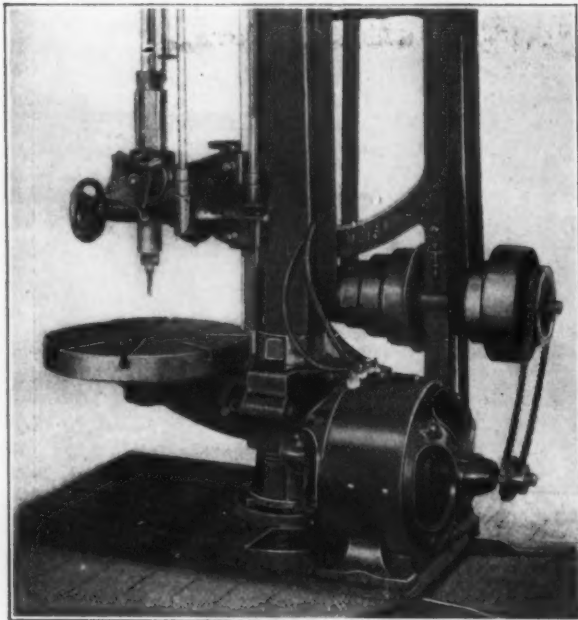
of 500 complete voting machines per year. The machinery required includes light milling machines, screw machines, punch and drill presses, lathes, &c.; also foundry and machine shop equipment. A 30 horse engine will be installed. L. R. Winslow is president of the company.

The Southern Rolling Mill Company to Erect a Plant.

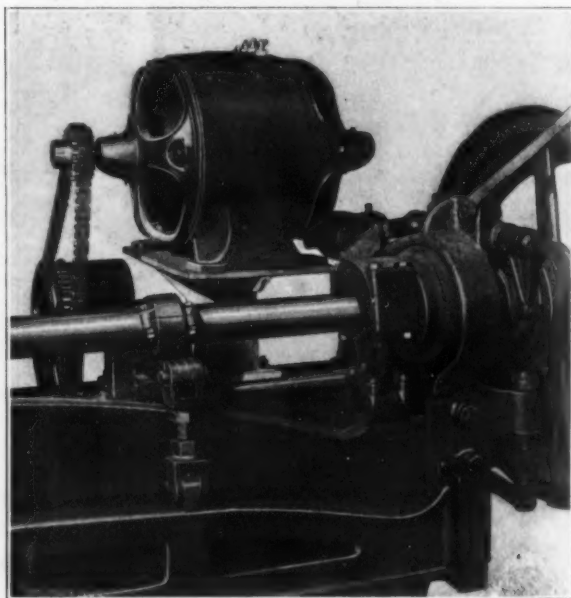
Articles of incorporation have been filed by the Southern Rolling Mill Company, who intend erecting a plant in the vicinity of Ensley, Ala. The company have a paid in capital of \$60,000. Bonds will be issued to defray the expense of erecting the plant. W. B. Catchings & Co. of 68 Wall street, New York, and 1914 Morris avenue, Birmingham, Ala., who are promoting the enterprise, write us: "We intend using a 10-inch guide mill backed by a roughing mill; a continuous heating furnace heated by gas. Arrangements have been made for 600 horse-power upright boilers, and we are figuring on an engine, 34 x 60, capable of giving about 900 horse-power. We will use about a 40-ton fly wheel. No puddle mills will be used, as we intend rerolling steel billets." Aside from the engines and boilers the specifications for equipment call for the following: One continuous billet heating furnace fired direct with producer gas, capacity 150 tons; sand receiving chambers, hydraulic water pipes within the furnace lines, stack foundations, iron stack lined with fire brick, two hydraulic pushers, pulpits and delivery machinery; one 16-inch roughing mill direct connected with engine; one 10-inch train of finishing rolls connected with the engine by belt and a complete set of rolls; one pair of



Driving Bending Rolls.



Driving Drill Pins.



Driving Shears.

THE RENOLD SILENT CHAIN IN A STRUCTURAL SHOP.

much cheaper because it has a higher calorific value and will, therefore, do more work, but as this is the moot point in the controversy of oil vs. coal it does not seem to be a commercial consideration. A great point established, however, is that Texas oil has now an outlet to foreign markets.

The Winslow Ballot Machine Company of Kansas City, Mo., have been incorporated for the purpose of manufacturing and marketing automatic voting machines: the company purchased from L. R. Winslow the United States and foreign patents covering the construction of these machines, also the special machinery for their manufacture, formerly owned by the Winslow Voting Machine Company. An entirely new plant will be established at once in Kansas City, with a capacity

heavy shears, one tensile test machine, one bending test machine, conveyors, tracks and cars for billets and track scales, one electric generator and one electric motor; one main shed, 120 x 40 feet; one shed covering gas producers and boilers, 30 x 40 feet; iron floor, 20 x 30 feet; run out, 80 feet long.

The Oldbury Chemical Company of Niagara Falls is about to erect a new factory building. It will be located on the lands of the Niagara Falls Power Company west of the Junction Railway trestle. An underground tunnel will connect the present plant with the new works. There will be five brick buildings. While it is understood that the output will differ from that of the present plant, the company do not state at present just what the product will be.

The Eight-Hour Labor Bill.

WASHINGTON, D. C., March 4, 1902.—The House Committee on Labor on the 26th ult. gave a hearing on the pending eight-hour bill to A. C. Dinkey, general superintendent of the Homestead Steel Works of the Carnegie Steel Company, and Judge L. E. Payson, representing the Stirling Boiler Company, both of whom strongly opposed the passage of the bill. Mr. Dinkey developed in detail the objections to the compulsory eight-hour plan as found in a large plant doing both Government and commercial work, which he said were such as would compel the Carnegie Steel Company to surrender their Government contracts. Samuel Gompers, president of the American Federation of Labor, who was present, cross-examined the witnesses at some length, and precipitated a spirited colloquy between Judge McCammon, representing the Bethlehem Steel Company; Colonel Herbert, representing the Midvale Steel Company, and himself by asserting that he had received positive assurances both from Mr. Schwab of the United States Steel Corporation and Mr. Corey of the Carnegie Steel Company to the effect that they were "heartily in favor of the eight-hour bill." Under the sharp questioning of Judge McCammon and Colonel Herbert, Mr. Gompers was finally forced to admit that Mr. Schwab and Mr. Corey had stated simply that if a universal eight-hour plan could be brought about they would be disposed to favor it, which Judge McCammon asserted with much emphasis was a vastly different thing from a declaration in favor of the pending bill, which prohibited workmen from laboring more than eight hours, whether they desired to do so or not, and which would affect only concerns having contracts with the Government.

Testimony of A. C. Dinkey.

Mr. Dinkey prefaced his statement by saying that he had been employed in the Homestead Steel Works for 13 years, having begun in the capacity of a telegraph operator and having served in the machine shop and in connection with the development of electrical appliances in the Homestead plant, and for some time in the armor plate department. Continuing, he said:

"Our product for the Government is made up chiefly of ship plate, armor plate and structural material. The quantity of this product per month, as compared with the total output of the plant, is approximately 3 per cent. In other words, our shipping tonnage from the whole plant each month is approximately 100,000 tons. Of this approximately 300 tons is armor, 2500 tons ship plate and structural material. The system under which we are at present working constitutes a development in methods of operation which I believe started at the beginning of the concern, and has continued to the present day and will continue. This development has changed methods, machinery and hours of labor, each successive step, I believe, to the mutual advantage of both employees and employer. At the present time about one-third of our men are what are commonly known as tonnage men. These men are on duty 12 hours, from six in the morning until six in the evening, and six in the evening to six in the morning. The balance of the men are on day work, and are on duty 10 hours in the day time and 12 hours at night, and are paid a certain rate per hour. We have a very few positions in the works which have been found advantageous for both company and the men to have on eight-hour shifts. One of these places is in the converting mill, where the work is hot and where the work when required is desired to be accomplished as promptly as possible; the other is in our chemical laboratory, where rapid work is required from our chemists.

"This bill, if it becomes a law, will so interfere with what we consider the proper method of operating as to make it impractical to undertake Government work at Homestead. Permit me briefly to take up a few illustrations. The production of an armor plate begins with the making of the mold in sand. This mold requires to be dried in an oven for approximately 12 hours. Assume, for example, that after the workman had completed his eight hours he found that by working another

hour the mold might be completed and put in the oven to be dried during the night. Under the law this man would not be permitted to finish the mold and secure an economic routine of the work, but would be compelled to permit the mold to stand in its unfinished state over night and to finish it the next day, thus compelling a 12-hour delay at the very outset of this particular plate. We might find similar delays in each operation of this plate up to the shipping point. To a person employed in a manufacturing establishment such a wasteful operation would be looked upon, I believe, in much the same way as an attorney would look upon the waste of his time by a client who should make an appointment and fail to keep it.

"There is another important operation with regard to melting the steel required for armor plate ingots, as was explained by Mr. Johnston. This is a particularly high grade steel and requires the service of a person more than ordinarily expert in steel melting. We plan all our armor plate steel melting so that the men in charge at the beginning of the heat shall finish the pouring. This operation consumes approximately 12 hours. Mr. Corey spoke, when before the committee, of difficulty as experienced in changing turns. I believe this difficulty to be a real difficulty, and I am firmly of the opinion that the very best results with regard to quality can be secured only by this method.

"There is another equally if not more important step with regard to excellence of plate in the work of tempering. These plates are required to be heated in a certain way, perhaps hotter on one side than on the other, sometimes uniformly heated—heated to within a few degrees of a predetermined temperature. When this point is reached there are a very few minutes' margin between what will result in a perfect plate and a failure. This operation almost uniformly consumes more than eight hours, and I believe the best interests of quality are taken care of by having the person who undertakes the work at the start remain responsible for it at the finish.

"There is another illustration, which is typical of numberless conditions which will constantly arise in an attempt to work a compulsory eight-hour day in the same factory which employs any of its labor more than eight hours. I have in my mind at the present time a crane required for handling the plate which is ready to be tempered. This crane, as you all know, is a tool of a very high power, and is complicated. It is a machine which requires men to be skilled in its operation to perform the duties required of it. The supply of such men at the present time (and it has been so for a number of years in the Pittsburgh district) is scarcely equal to the demand. If the man in charge of this crane had worked eight hours and the tempering of the plate would require the men to work another hour, I have in mind many instances where we would find ourselves without a crane man. We might be tempted with plate all ready for tempering to try a person on this crane not entirely competent to do the work. Under such circumstances we might run into accidents too horrible to contemplate. Men employed on large work perform their duties as a unit and come to understand each other in a sort of instinctive way. Signals are given back and forth which are perfectly understood by the regular men. One stranger, however competent, but misunderstanding a particular signal, may start a sequence of occurrences which will not only result in spoiling the work in hand, but endanger life as well.

"I spoke of the number of hours in which men are on duty at our works, and I believe they are satisfied with their hours as they are at present arranged. It is a fact that we have very many employees that have been with us 10, 12 and 15 years. It is a fact, also, that some of these men on the 12-hour shifts cannot be considered young men. I know of one case of a man who held the same position for at least 12 years to my personal knowledge, and worked in this position to his eightieth birthday. I know many men who work to-day who are 60 years old. I believe it is true that no other employee of the works knows so many of the men personally as myself. I am intimately acquainted with

their circumstances and their surroundings, and know many of their families. Some of them are machinists, who continue to work for us for ten hours per day at the rate of 28½ cents per hour, when next door and close by are shops working nine hours and paying 32½ cents per hour, and when contractors are short of men are working nine hours a day for 42½ cents per hour. I contend that from my personal knowledge the men at Homestead are satisfied with their surroundings and desire them to be continued as they are. It is recognized by our employees that industry and thrift are stepping stones to promotion in the various branches of the works. I think the operation of a compulsory eight-hour law would change all this and work as much ruin to the individual as it would to quality and quantity of output.

"While our men are on duty 12 hours in all of the rolling and steel melting mills, they are not now performing the fatiguing manual labor, owing to improved machinery and methods now in vogue, that they did in former years. The work as at present carried on is done almost entirely by machinery. We have, therefore, fewer men in a particular department, and each of these men selected with reference to a particular adaptability for a special position. The work he does, in many instances, requires very little attention for hours at a time. Under these circumstances it is not found a hardship in any sense of the word for him to remain on duty 12 hours. One evidence that this is not a hardship is found in the fact that men not on these particular jobs consider these positions very desirable, and prepare themselves while employed on their regular duty for advancement to tonnage work. It can be readily understood that changes in these positions when they are so sought after do not take place frequently. In nearly every case in the various crews at Homestead it will be found that the chief men are old employees of the works, having advanced to the positions held at the present time by promotion from small beginnings. Those holding positions called rollers and heaters permit of earnings to the extent of \$10 and \$15 per day.

"There is an item, which perhaps speaks as loud as any detail of wages that could be given, in the average earnings of the employees of Homestead, excluding the officers of the works, for the year 1901. I had our chief clerk make this figure for me, and find it to be \$2.73 per day.

"I believe it is necessary to secure successful operation of a factory to pay liberal wages, and to have employees satisfied with their conditions, so that they can unmistakably show that they have a lively interest in the quality and quantity of production. I know that work with the employees at Homestead is not considered a hateful thing, for, on the contrary, I know that they are proud of their achievements both in quality and quantity. They are proud of the records for production made in their respective mills. They are fully conversant with how these productions are secured. I believe it is true that in many instances men holding subordinate positions have a more comprehensive knowledge of the work in hand than some of their superiors.

"This leads to the question of the successful operation of our plant as a whole on an eight-hour day instead of the present plan. A mill that Mr. Corey once had direct charge of was operated by three eight-hour shifts and then changed to two 12-hour shifts. The best output for this mill in the former case was approximately 5000 tons for the month; the best output on the 12-hour turn was 6000 tons for the month. You might reasonably ask my explanation. I think the result obtained was for the following reasons: The output of a mill is largely dependent upon smooth running; by this I mean that delays from any cause shall be as few in number and of as short duration as possible. A crew of men on a large mill get to understand each other, and so the work of the department proceeds as if one man were performing each operation. The work of a particular man may be a very small item of manual labor, but the requirements of the case make it necessary to have that small piece of work done at the right time. This concert of action is expressed correctly by the term 'team work.' That is what we seek to develop in the crew. If this team work extends over eight hours we have

three breaks in the 24. If it extends over 12 hours we have two breaks in the 24 hours. The speed of a crew of a mill is not attained in the first hour of work, and it is for these two causes that I believe it possible to produce a larger output by running 12-hour shifts instead of eight-hour shifts. Many of the men that were employed on this mill when Mr. Corey ran it eight hours are employed on the same mill at the present time, and I believe if we should ask those men to go on eight hours at the same rate per ton that they would strenuously object to the change, for the reason that being paid by the ton they get more money at the end of the month requiring 12 hours per day than they would if they worked eight hours per day."

In reply to questions by Mr. Gompers the witness stated that all the men at Homestead, in his opinion, would object to the enforcement of an eight-hour day, and that he based this opinion upon an intimate acquaintance with the men themselves. Reverting to the strike of 1892, Representative Graham of the committee asked if the question at issue was not the recognition of the Amalgamated Association and not a question of wages, to which the witness replied that that was what the controversy finally developed into, whereat Mr. Gompers declared that there was no question of the recognition of the union involved in the entire controversy, to which Mr. Graham retorted that the Congressional investigation showed conclusively that the recognition of the Amalgamated Association was really the main question at issue.

An Eight-Hour System.

Mr. Gompers then took up the question of the eight-hour day, declaring that a few weeks ago President Schwab of the United States Steel Corporation and Mr. Corey, president of the Carnegie Steel Company, had stated to him that they hoped the eight-hour bill would pass, and asked Mr. Dinkey if the opinions "of those two men of experience would not have some influence upon his judgment as to the impracticability of the eight-hour plan." Before the witness could reply, Judge McCammon requested leave to make a statement in behalf of all the firms represented before the committee.

"I would like to ask Mr. Gompers," said he, "whether Mr. Schwab and Mr. Corey said they favored an eight-hour law, or an eight-hour system. We have stood here for some time in opposition to this eight-hour bill, but we have all protested that our opposition was not to the eight-hour system, which is an entirely different thing from what is proposed by this bill. I cannot imagine that Mr. Schwab and Mr. Corey ever favored this eight-hour law, and I refuse to believe that they have ever made the statement quoted in connection with or in reference to the pending bill, H. R. 3076, or any other bill that has ever been discussed before this committee."

In reply to this statement, Mr. Gompers modified his declaration, and described the incident he had referred to as follows:

"With others, I had a conference with Mr. Schwab and Mr. Corey and other gentlemen representing the constituent branches of the United States Steel Corporation, with a view of endeavoring to secure some adjustment of the strike of the Amalgamated Association of Iron and Steel Workers last summer. At the conclusion of the conference, Mr. Corey approached me and said that he supposed we should meet again in Washington with regard to the eight-hour bill. I replied that it was more than likely, and that I should expect him to appear in favor of the bill. He said in reply: 'I do not think that I opposed it vigorously, or that I could really be quoted in opposition to it when I appeared before the committee last year.' Just then Mr. Schwab, who had overheard the conversation, came up and said: 'Yes, Mr. Gompers, make the law universal for the eight-hour day, and I will be with you.'"

"I expected that reply," said Judge McCammon. "You will find almost the identical language used in the brief of the lawyers who were employed to represent the contractors before this committee on the first of these bills that was brought forward. If you can get the consensus of the manufacturing world to agree to the eight-hour system—not an eight-hour law, but an

eight-hour system—then we have no objection. The objection is that you are trying to penalize people simply because they contract with the Government. It is very evident that everybody, or substantially everybody, must be satisfied that the ten-hour system was adopted years ago with the consent of the employer and the employee, and with the consent of humanitarians, and perhaps ultimately that we may be able to reach an eight-hour day. But what has that to do with the bill H. R. 3076? It has no more to do with it than the transit of Venus. This bill makes it a penal offense for any laborer to be permitted to work more than eight hours. That was not in the minds of Mr. Schwab and Mr. Corey when they had this talk with Mr. Gompers. They are gentlemen of rare intelligence, and they know a great many things outside of their mere technical knowledge of the manufacture of steel. They know, as American citizens, that such a prohibition is opposed to the genius of our institutions; that it is contrary to the theory of American liberty; that it interferes with the right of the laboring man to sell his labor as he pleases, the right of the employer to employ a laboring man, with his consent, for any number of hours. This is the point on which we divide with the gentlemen who represent labor before this committee, and we will continue to assert before this committee and before any legislative body, and before the courts if necessary, that this prohibition is contrary to every principle for which our fathers have fought and for which men have lived and died throughout the world as represented by what we call Anglo-Saxon liberty. The idea of saying to a laboring man 'you shall not be permitted to work more than eight hours a day' is such an outrage that when it is understood it will bring contumely upon everybody who is engaged in attempting to enforce it. It is socialism of the very worst character, and there is not an intelligent workingman in the United States, if he is a true American, who wishes to be told by an act of Congress that he shall not be permitted to work more than eight hours a day. I do not believe that Congress, when it comes to understand the question, and certainly not the American people, and most certainly not the courts, will permit any such outrage to be perpetrated."

Colonel Herbert followed in a statement of similar tenor, after which Mr. Gompers replied sarcastically that the American workmen had "a very keen appreciation of the activity of the attorneys for corporations in defending and protecting the liberties of the American wage earners," and declared theatrically that he was willing to carry all the contumely involved in fathering the pending bill.

Judge L. E. Payson's Testimony.

Judge Payson then made a statement on behalf of the Stirling Boiler Company, who he said were now engaged in the manufacture of water tube boilers, which they supply to United States and foreign war vessels. From 10 to 12 per cent. of the company's output was on Government contracts, while the balance was commercial work. Continuing, he said:

"In the consideration of this matter, we suggest that while under certain conditions and in certain employments men should not be required to spend more than eight hours per day in hard manual labor, it does not by any means follow that the hours of work should be limited in all cases to eight hours per day, irrespective of the character of the work done, the conditions surrounding the workman and the time actually spent by him in physical exertion. In machine and boiler shops, foundries and blacksmith and forge shops the workmen are not by any means constantly exerting physical effort during the entire number of hours of work, whether it be eight or ten hours per day. In the modern boiler shop high grade machine tools and labor saving devices play an important part, and in practically every machine shop the actual physical labor of the man engaged in operating the machine tools is not more than one hour in ten. The greater portion of his time is spent in adjusting his tools and seeing to it that they operate properly.

"In blacksmith and forge shops, in which it is popular to fancy that the most vigorous physical efforts are constantly directed, the actual time spent by the work-

men in manual labor will not average more than five hours out of ten, for the reason that it will require at least five hours per day to heat the metal which they work, during which time they are idle. In foundries where gray iron, malleable and steel castings are made the time consumed in actual labor will not amount to more than seven hours in ten. The molder concludes his day's work, closes his mold ready to receive the molten iron, at the time the blast is put into the cupola. The time of putting the blast into the cupola varies in different establishments, but it is usually from two to three hours before the end of the ten-hour day. The last two or three hours, then, of a molder's day are spent in seeing that his molds are filled, that his flasks are removed and his day's work is then done. Therefore, even though the ten-hour day is in vogue at a large number of industrial establishments, it does not necessarily follow that the workingmen employed in such plants are engaged in hard physical exertion during the entire ten hours of the day. On the other hand, the very nature of the work requires cessation from time to time for one reason or another, so that, in consequence of purely natural conditions, the endurance of the men is at no time strained.

"That the rank and file of the men themselves do not desire any change is evidenced by the fact that during the past two or three years, during which all classes of manufacturing establishments have been so busy, the men have voluntarily been eager to work overtime and in consequence earn increased wages; indeed, the disposition of our men to do this became so marked a year or two ago that we were compelled to establish a rule that we would not employ men overtime except under extreme conditions. You understand, of course, that when men work overtime they are entitled to a higher rate per hour than is paid when they work only the usual number of hours per day.

"It may be argued that the building trade is an example of the beauty of an eight-hour day. It must be borne in mind that men engaged in this class of work are more or less exposed to the elements, and the fewer number of hours employed per day is more wearing on them than a greater number of hours per day would be on an employee working in a well protected and well heated shop. What is applicable to a class of men engaged in one kind of work is not applicable to men engaged in another. There may be merit in the contention that men engaged in hard physical work outdoors, where they are exposed to the extremes of heat and cold, rain, snow, &c., should not be required nor permitted to work more than eight hours per day, but in manufacturing establishments, where the men are well housed, in buildings that are thoroughly ventilated in the summer and well heated in the winter, and where the men, by the very nature of their employment, cannot stand more than from five to seven hours per day in hard manual labor, it would be an infringement of their rights to require that they limit the number of hours during which they earn their livelihood.

"In many industrial lines the hours of work per day have been reduced as a result of modification of conditions, and in obedience to what will appear to be natural laws. Each individual case has adjusted itself in obedience to its environment and peculiarities. Take, for instance, railroad employees; their hours vary with the class of work. The hours of a yard switching crew are 12 hours per day, the hours of the average freight crew are 12 to 15 hours per day, while the hours of the passenger crew are about five hours per day. The freight yard crew does more manual labor and less brain work; the freight train crew does slightly more brain work and less manual labor, while the passenger crew does more brain work and less manual labor, and, notwithstanding the shorter hours of the men engaged in the latter work, they wear out faster than either the freight or yard crews. In rolling and steel mills, for the engineers, firemen and common laborers and such other employees whose employment requires very little brain or manual effort the day is 12 hours. The rollers, on the other hand, owing to the improved methods which have made the heating of metal practically continuous, work only from six to eight hours per day. In days

gone by, when heating was intermittent, their day was almost 12 hours.

"We venture to suggest, therefore, that an investigation will prove that conditions surrounding work and the character of effort required in each individual plant will more satisfactorily bring about an equitable and natural adjustment of the number of hours of work per day than can be accomplished by any legislation. Furthermore, if men were suffering in any particular plant on account of the excessive number of hours of labor in any particular class of work they would naturally shun that plant and that character of work, and secure employment in other directions."

The committee then adjourned until March 6, with the understanding that the hearings would conclude on March 13.

W. L. C.

The Cost of Depreciation.

Foreign exchanges cite an instance of one firm in England who have recently expended \$250,000 in new

But English manufacturers are by no means backward in spending large sums upon what might be called details, changing the motive power from steam to electricity, for example. One concern have just paid \$350,000 for this item alone, and similar outlays are being incurred all over the United Kingdom. If this was for simple wear and tear, or renewals alone, it would not warrant comment, but it is forced upon English mill owners by depreciation of plants in part, and by changes in systems of workings, which, if taken in hand promptly, would have been much less expensive.

Woodward & Rogers New Drill Presses.

The machine shown in the first two illustrations is a 14-inch four-spindle automatic feed sensitive drill press built by the Woodward & Rogers Company of Hartford, Conn. It will drill up to $\frac{3}{4}$ inch in diameter. The spindles are tool steel 1 inch in diameter, and have taper holes for No. 2 Morse drill socket. The throw of the spindles either by lever or automatic feed is $5\frac{1}{2}$ inches.



Fig. 1.

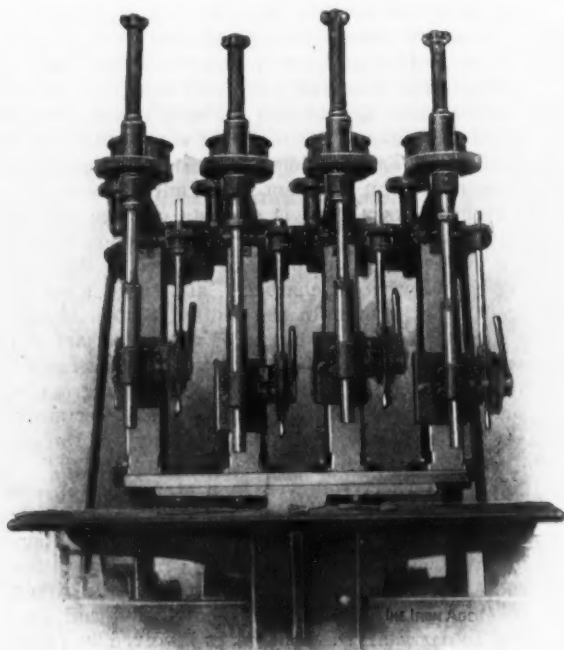


Fig. 2.

Four-Spindle Geared Automatic Feed Sensitive Drill.

WOODWARD & ROGERS NEW DRILL PRESSES.

machinery and improvements generally tending to increase their output, and see in this outlay an assurance that the competition of this country does not amount to much after all; it can, say the technical journals, be easily met if other concerns would do the same. This tacit admission that English steel mills are behind the times with their antiquated processes may have more or less effect in bringing about a new order of things, but by the time they get ready to adopt our present systems we shall have inaugurated newer and still better devices, so that the prospect for immediate competition does not seem very encouraging. The outlay mentioned above will not go very far in a steel mill, but taking it as it stands, the money that will have to be expended to reconstruct English steel works is very large in the aggregate, and perhaps not easily obtained. If there are only 100 mills and each one expends but \$250,000 we can readily see the gross amount of money which will have to be invested in rehabilitating English steel mills at once, and further sums so soon as they can have been earned, for it is not to be supposed that every machine in any mill will be scrapped out of hand.

An adjustable stop is used on the spindle to gauge the depth of the hole to be drilled, and springs are used to throw the drill out of the work when the required depth is reached. From the center of the spindle to the column is 7 inches, and the spindles are $8\frac{1}{2}$ inches apart. They have a traverse of 13 inches on the upright, and are adjustable up and down by moving the arms, which are gibbed to the front of the uprights. The spindles are counterbalanced by weights inside of the uprights.

The table is gibbed to the column, and is adjustable its entire length, giving a maximum distance between spindle and table of 45 inches. The table is 14 x 45 inches inside of the oil groove. Large three-step cone pulleys with a wide face are used, taking a $2\frac{1}{2}$ -inch belt, while the driving pulleys are 12 inches in diameter by 3-inch face. The machine takes the belt from the main line, no other countershaft being needed.

Each spindle has independent feed and three changes of feed and speed. This feature is peculiar to this drill. The automatic feed is obtained direct from the spindle itself, which is geared by a series of gears. This makes a very strong and powerful machine, and one that will

stand the hardest kind of usage. Large worm gears are employed, and a knock off is used to throw out the feed by striking a cam arrangement when the required depth is reached.

Extra braces are used, such as are shown in the cuts, from the upper bracket to the lower and from the lower or driving pulley bracket to the floor. Also, from the base of the upright to the lower bracket. The weight of this machine is 1200 pounds, and it is built with from one to ten spindles, and with or without the automatic feed.

With a few exceptions the same general description applies to the six-spindle automatic feed drill press shown in Fig. 3. The spindles are $\frac{3}{4}$ -inch tool steel, the taper No. 1 Morse and the throw $4\frac{1}{2}$ inches. There are three changes of feed and three changes of speed, the latter being independent for each spindle. This machine is not so heavy as the other, but is of ample strength for the work it is intended to do.

We have heard more or less frequently of late that English railways hauled very light loads, but if a

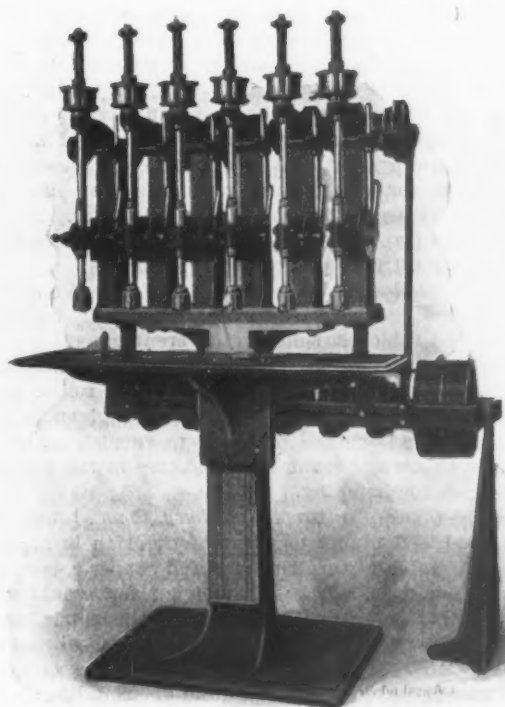


Fig. 3.

SIX SPINDLE WOODWARD & ROGERS DRILL PRESS.

foreign contemporary has not made some errors and omissions in its rendering of the North Eastern Railway's report for 1890 there is small wonder that its stockholders revile the management. From the report aforesaid it appears that the average train load of minerals was 92½ tons, and the average train load of merchandise 44½ tons; why they figured so close to nothing, or running trains as empty, is inconceivable. The average distance these weighty trains ran was 22½ miles; halves seem to belong by right to the management. The ton mile rate was barely 2 cents a mile, so the company received the sum of \$46.25 for hauling 92½ tons 22½ miles. The merchandise trains can be figured by any one who may have the curiosity to do it; but it should be noted that the rates vary a little; when the distance is only 16 miles the rate is 1.11 pence per ton mile, and over 32 miles 0.806 pence.

The estimates for the Prussian State railroads for 1902 call for 187,530 metric tons of rails, 75,440 tons of track material and 102,490 tons of steel ties, the prices per ton being, respectively, 120.3 marks, 140.7 marks and 111.4 marks.

The Metric System and Machinery Supplies.

WASHINGTON, D. C., March 4, 1902.—Director S. W. Stratton of the new National Bureau of Standards has laid before the House Committee on Coinage, Weights and Measures, which has under consideration the metric system bill, an interesting exhibit designed to show the ability of the leading manufacturers of machine tools, steel shafting, iron and steel wire, brass and copper tubes, rods, sheets, wire, &c., to supply their products in the metric system. In connection with the equipment of a complete machine shop for the new bureau, Mr. Stratton recently addressed letters to 25 or 30 of the leading manufacturers, taking his list from the advertising columns of *The Iron Age*, and requesting to be advised as to whether the firms addressed could supply the bureau with certain tools and materials, &c., in the metric system. At the time these inquiries were forwarded Mr. Stratton had no design except with reference to the equipment of the shop referred to; but the replies as a class indicate so conclusively that the great majority of the manufacturers are thoroughly up to date in the matter of producing their specialties on a metric basis that Mr. Stratton has taken the liberty of laying them before the House Committee having the metric bill in its custody. Following are brief extracts from this interesting correspondence:

Standard Tool Company, New York, twist drills, reamers, taps, &c.—We beg to advise we are prepared to furnish twist drills, all styles, also reamers, in metric system. We take pleasure in forwarding you our new catalogue, and you will find twist drills and reamers as illustrated therein on the metric system. While we do not show in this catalogue taps in the metric system we can furnish them, and the next catalogue we get up will have taps in metric sizes illustrated as well. We can supply you with additional copies of these catalogues if you would like to have them on file in your office for future reference.

Hendey Machine Company, Torrington, Conn., machine tools.—We make a full line of metric lathes. We make a great many of them for export, going to France and other countries using the metric system. We refer you to our catalogue, which shows you all sizes of lathes from 14 to 32 inch swing built for the metric system. We call your attention in particular to the description of the lathe on page 37 of catalogue. We shall be pleased to furnish you lathes under this system if you so desire, the prices being the same as for our regular United States standards.

Grant Tool Company, Franklin, Pa., machine tools, steel balls, &c.—Regarding steel balls to metric dimensions, we are in position to furnish these, although we do not carry them in stock, and in this connection will say that it will be necessary for you to order a fair quantity of each size if they are small, as by our process of manufacturing steel balls we must have a quantity to enable us to produce them. If you will give us the dimensions, &c., we will be pleased to name you the price, and delivery.

Cleveland Twist Drill Company, New York, twist drills, &c.—We are pleased to advise you that we do make twist drills and reamers in millimeter diameters, and we will quote you discounts referring to our catalogue.

Morse Twist Drill & Machine Company, New Bedford, Mass., machine tools, drills, &c.—We like to write that we do make twist drills in metric sizes. We send you our catalogue by mail to-day, and you will find illustrated there the millimeter and the comparisons as to our regulation sizes. We carry millimeter and Morse tapers from 3 mm. to 50 mm. and other sizes of millimeters in proportion. We inclose a schedule of the millimeter sizes which we carry.

Carey Machinery & Supply Company, Baltimore, Md., sales agents, &c.—We note your inquiry in regard to lathes with metric lead screw. We are mailing you under separate cover a complete catalogue of Reed lathes, and you will find various sizes illustrated. The Reed Company make a specialty of furnishing lathes with metric system, and if you will select a suitable size we

will be pleased to quote you price. Our Mr. Fleming, who resides in Washington, will endeavor to call on you within a few days in regard to just what you want.

L. S. Starrett Company, Athol, Mass., fine mechanical tools.—We are pleased to report that we are prepared to furnish nearly all the squares, micrometers, gauges, rules, &c., that we list both in the metric and English system. We are making a specialty of the metric system, as we are able to supply a large line of tools graduated in that system—this you will note by referring to our catalogue, a copy of which we mail you under separate cover.

Schumacher & Boyé, Cincinnati, Ohio, machine tools.—We have your favor of the 17th inst., and in reply to same would say that we can furnish our lathes with metric lead screw without any extra charge.

John M. Rogers, Boat, Gauge & Drill Works, Gloucester City, N. J., drills, gauges, measuring machines, &c.—We beg to hand you herewith a copy of our millimeter price-list and to quote you a discount on the whole list, f.o.b. here.

Sullivan Machinery Company, Chicago, mining and quarrying machinery.—We have built the Willans engine to these measurements ever since it was introduced in the United States, and according to our opinion it is the ideal system. In connection with the Willans engine it was easily introduced, as all patterns, jigs, gauges and special tools were made according to these measurements from the first. It will be rather difficult and will require a long time to introduce the metric measurements in connection with Corliss engines, diamond drills, air compressors and other lines of machinery that we manufacture, because drawings, patterns and special tools are made according to English measurements in feet, inches and fractional parts of inches, and if any legislation was passed compelling manufacturers to adopt metric measurements patterns, drawings, special tools, jigs, gauges, drills and reamers would have to be carried in duplicate sets corresponding with special tools, drills, reamers, drawings and patterns now in use made according to the English measurements, and a sudden change from one system to another would be so expensive and confusing that it would be out of the question. New manufacturing industries that are equipping their shops with new and special tools for manufacturing a new line of goods could, as far as we can see, be compelled by legislation to adopt the metric system of measurements without any additional expense and annoyance to themselves.

Gay & Ward, Athol, Mass., milling cutters.—We do not manufacture standard cutters to metric dimensions, but are well arranged to make them to order. If you will send us a list of the cutters required, giving dimensions we will be pleased to furnish quotations. We take pleasure in sending herewith our latest catalogue.

S. W. Card Mfg. Company, Mansfield, Mass., taps, dies and screw plates.—We beg to say that we do make millimeter taps, per the inclosed list. Our prices on these would depend a great deal on the amount of red tape we have got to go through in order to collect our bill. We have never bothered much with the United States Government, for the simple reason stated above. Their orders are usually more trouble than they are worth, and we have to go before notaries public and justices of the peace until we have gotten disgusted.

R. D. Nuttall Company, Pittsburgh, Pa., electric railway trolleys, gears, &c.—We beg to advise that we are prepared to cut gears of all styles and sizes both to ordinary and metric sizes. We shall be glad to hear from you further in this matter. We are prepared at present to cut spur gears up to 15 feet diameter, 24 inches face, and will shortly have in operation a machine which will increase this capacity to 30 feet diameter, 5 feet face. Ordinary and Hindley worms and worm gearing, spirals, bevels and racks, in fact, all forms of gear cutting, we are prepared to handle.

Scott & Williams, Philadelphia, Pa., knitting machinery.—We are prepared to furnish high grade screws with metric thread at any time, in diameters of 1 inch or less. We will be pleased to have your samples, from which we could quote you our prices.

J. T. Slocum & Co., Providence, R. I., micrometer call-

pers, &c.—We have mailed you copy of our catalogue and will say that we are prepared to furnish all the sizes of our outside micrometer calipers except $\frac{1}{2}$ inch, and these will be ready shortly, in the metric system. We usually carry them in stock, and unless we happen to be low on one size can ship the sizes immediately. We shall be pleased to furnish any further information you may desire in regard to the tools.

The C. Pardee Works, Perth Amboy, N. J., steel shafting, plates, &c.—We beg to state that we can furnish planished steel shafting and finished shapes in metric sizes when ordered in sufficient quantity to make special dies therefor or roll stock of particular size to draw thereto. Such sufficient quantity as we have in mind would mean 2 or 3 tons of a size. By accompanying mail we are pleased to send you a copy of booklet on our planished steel shafting and finished shapes, which mentions sizes we make, with price-list, and gives other details pertaining to our product, and we trust you will find the same of interest. We are also turning shafting in the larger sizes up to $5\frac{1}{2}$ inches diameter, and are prepared to give our trade preference in either product in the medium sizes.

Prentiss Wire Mills, Holyoke, Mass., wire, &c.—We have had no occasion to draw wire to metric sizes. If our orders called for any quantity to be made to such sizes, we think we could furnish it without additional expense, but for small orders we should have to charge something more, depending upon the amount of the order. We draw a great deal of our wire to thousandths of an inch, so that we think we would have no difficulty in drawing to the metric size where called for. If you are in want of any wire drawn this way, please advise us, and we shall take pleasure in quoting.

American Steel & Wire Company, New York.—We manufacture wire to metric sizes as named by you. Inclosed herewith find table showing the different gauges.

Waterbury Brass Company, Waterbury, Conn., brass and brass goods.—We furnish brass and copper tubes, rods and wire made according to specifications given in the metric sizes, and we are prepared to furnish material ordered in this way provided same comes in the size we are fitted up for handling.

Randolph-Clowes Company, Waterbury, Conn., brass and copper goods.—Replying to yours of the 17th inst., asking if we are able to furnish brass and copper tubes and rods (wire we do not make) in metric sizes, would say, we have in the past filled foreign orders in metric sizes, and of course could do so again. However, when material is ordered of us in metric sizes it is necessary for us to translate same into inches and thousandths of an inch, as all of our dies, tools, gauges, &c., are marked in this manner. We, therefore, much prefer to receive orders with required measurements given in inches and decimals of an inch.

Ansonia Brass & Copper Company, New York, brass and copper goods.—We beg to say that we can furnish brass and copper tubes, rods, wire, sheets, &c., to the metric sizes. We very often fill orders to metric measurements and the majority of the material goes to foreign countries. All such lots of goods, of course, have to be made especially to order.

American Steel Hoop Company, Pittsburgh, Pa., steel hoops, &c.—We beg to advise that we do not roll any steel products in metric sizes nor could we do this, even though we should be called upon for such material.

Pittsburgh Steel Shafting Company, Braddock, Pa., steel shafting, screw steel, &c.—We would say at the present time we are not in position to furnish shafting or other shapes in metric sizes.

Norway Iron & Steel Company, York, Pa., steel and malleable iron castings.—We beg to say that we are prepared to furnish castings to metric dimensions, if you have any castings to order. If this is simply an inquiry as to whether we are prepared to support the introduction of the metric system, we beg to say that we have no intention of supporting any such nonsense.

E. F. Reece Company, Greenfield, Mass., screw cutting tools.—We note that you want to know if we are prepared to make special taps to metric sizes. We would say, that we have never made any of these, and there is so little call for them it would never pay us to rig up

to make them, as all of our trade runs mostly on U. S. S. We are so far behind on orders for this kind that we would not care to make the metric threads at present.

American Screw Company, Providence, R. I., screws.— We are not prepared to furnish screws with metric threads and cannot, therefore, name you prices

W. L. C.

Technical Suits at Law.

EGBERT P. WATSON, ELIZABETH, N. J.

A branch of jurisprudence which presents many difficulties to the average advocate is suits involving technical details of machines or of engines and boilers. Without at the least some natural aptitude for mechanism and an ability to comprehend the relations of parts and their functions success is very unlikely. Not long since a lawyer went into the office of a consulting engineer and said that he wished to advise with him as to a collision case in which he was retained as prosecuting attorney, and he produced a number of blue prints which purported to represent the engines of the vessel alleged to have caused the collision. The engineer said that he was willing to advise, and further said that his fee was \$25 per hour in such cases, which he requested should be advanced. This seemed to surprise the lawyer, who stated that he did not know that engineers charged for a few moments' advice, but the engineer replied very quickly that his education had cost him as much as the lawyer's, and as he had never known a case where they gave gratuitous advice he could not entertain any proposition looking to consultation without a fee; it might require a few moments only or hours, but that could not be foretold; in either case a fee would have to be paid in advance. After some demur the lawyer had to accept the situation, and descended upon the engineer with a violence of speech that surprised him. The lawyer assumed that the engineer was a recalcitrant witness, who intended to tell deliberate untruths and deceive him if possible, so he adopted the browbeating tone which is common to some advocates at the outset of his examination. The engineer stopped him promptly by saying that he must lay aside his professional tactics and confer with him as one gentleman with another, otherwise his fee would be returned. After a better understanding had been established as to the conditions of the conference the lawyer proceeded to state his case. A certain steam vessel was in the harbor and making for her dock, when she was checked in her course by another steamer coming out of a dock. It was admitted by the lawyer that the usual whistle signals were exchanged by both vessels, but notwithstanding, vessel A ran into vessel B and injured her so seriously that she sank in the channel. The lawyer, representing vessel B, claimed that the damage was caused by the engines of vessel A being unmanageable.

"Can you show that?" asked the engineer.

"Certainly," said the lawyer; "here are the drawings to prove it. The engines are compound and entirely out of date; only triple expansion engines are now used on the great liners and all modern vessels; I am thoroughly posted on that point, for I have looked it up carefully."

"Were not the engines driving the vessel at the time of the casualty, and had she not just come in from a voyage?" said the engineer.

"Yes," said the lawyer, "but for all that they were not handled quickly enough to prevent her from sinking us."

"That will be very difficult to prove," said the engineer.

"Not at all," said the lawyer, "the captain and two wheelmen were in the pilot house and gave the proper signals, but the engines were not reversed in time to prevent the accident; every one in the pilot house will make oath to this fact."

"Will they also make oath that the engineers below got the signals?"

"How's that; I don't understand," said the lawyer.

"The persons navigating the vessel swear they pulled a certain bell handle, which was supposed to operate a

gong in the engine room; can they assert of their full knowledge that the gong actually rang?"

"Of course it rang; that's what it is there for. I have heard them ring myself many a time on ferry boats," replied the lawyer.

"Well," said the engineer, "that is a very weak point in your case; for against your three men in the pilot house swearing to one set of circumstances, the engineers below can bring a dozen, more or less, to swear that on this particular occasion they got no signal at all. That is by no means an unusual condition of things with gongs; the wires stretch and sag and foul something; then the gong does not operate. Is the gong audible in the pilot house in this vessel?"

"I don't know about that," said the lawyer, "but I will inquire."

"It will be very difficult to offset the testimony of the engineers upon the fact, and as a point in the defense it does not seem a very strong one," said the engineer. "Have you any others to bring out as to the engines?"

"Yes," said the lawyer, testily. "I told you at the beginning that they were obsolete and not such as are put into modern steamers."

"Compound engines are not obsolete in the sense that they are no longer used, for many of them are built to-day, where the circumstances and conditions require their employment; they are not so economical as engines which use steam more expansively, but they can be handled just as quickly as any other engines."

"How are they handled; show me the mechanism for that work," said the lawyer.

"Certainly," replied the engineer, adding: "But would you kindly turn the print; you have been looking at it upside down ever since you came in." He then showed the lawyer the starting gear, and he explained, as he thought, the action of it very clearly, but upon conclusion found that the lawyer did not comprehend what had been said to him in any particular, and was very likely to do himself or his case more harm than good if he attempted to make a point that the injury to the vessel was caused by delay in reversing the engines. After a desultory skirmish among engineering possibilities in all sorts of hypothetical conditions, none of which had the least bearing upon the actual case to be tried, the lawyer went away, and the engineer wondered in his own mind what information he supposed he had obtained and how he could utilize it to advantage.

This is not an unusual instance in technical jurisprudence, and a change in it would be advantageous to all concerned. Legal tactics sometimes win cases against the weight of evidence, just as a chance blow may decide athletic contests, when they should be settled upon the facts adduced. These are for experts to determine, not laymen, but how is their evidence to be had? Certainly not upon the present procedure. The methods in use are to examine experts, or to endeavor to bring out certain facts upon both sides that are mutually damaging, but the lawyers who examine have no idea as to the nature of the questions that should be asked, and, as a rule, propound those that are wholly irrelevant and immaterial. Some of the queries put by lawyers injure their own cases seriously, and if followed up by the experts on the other side, who are fortunate enough to establish connection with their own lawyer, gain the suit. Establishing connection with one's own lawyer in technical causes is exceedingly difficult for expert principles. These last are permitted to sit behind or beside their lawyer and prompt, or coach him in certain stages of the trial, but this is most unsatisfactory from every point of view, the result being to throw the lawyer out of his forensic stride, so to speak, it being in the nature of an interruption only. Neither a lawyer nor any one else can catch the drift or purport of a suggestion made by another, or see the sequence of it, when his mind is elaborating and putting into speech the views that occur or the questions he was about to ask. I have been a participant as principal and as witness in several technical trials, and never yet succeeded in finding a lawyer who could act upon a verbal hint as I would myself, and nothing but a firm belief in the truth of the adage, "That a man who acts as his own lawyer has a fool for his

client," has prevented me from trying my own cases; that and want of knowledge of procedure. There is a way by which technical trials could be carried on with far better results to those in interest than the present systems of practice in this country, but I am not certain that it would be permitted. If experts were allowed to examine each other in the direct examination and take a *voir dire* part in the cross, in connection with their counsel, the issues would be different in many instances. The experts could seize opportunities as they arose to fasten assertions made, and get them on record, whereas the lawyers, not recognizing their pertinency, would overlook them entirely, and, in fact—as I happen to know in one instance—miss the vital points in issue. I am told by a well-known jurist of New Jersey that if both sides would agree to this feature of technical trials, and the judge also coincided, it might be allowed to occur in any particular case, but I hardly feel that the laws would be altered to incorporate it permanently.

With the accuracy of the expert evidence insured the duration of technical trials would not only be greatly abbreviated, but the possibility of appeals much lessened; this last, however, might not find so much favor in the eyes of the legal profession as it would in those of the litigants.

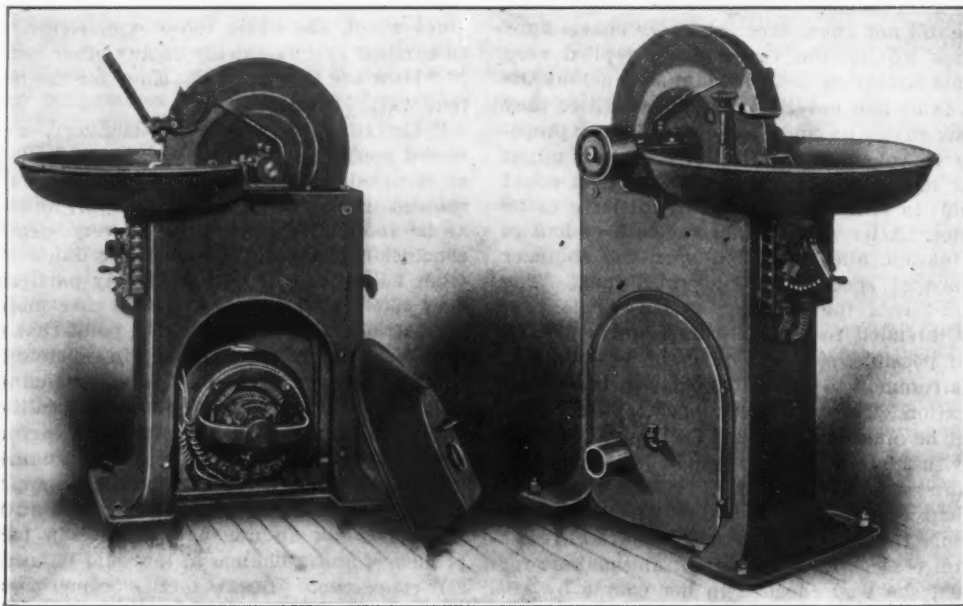
It may be said that lawyers could prepare them-

the case under trial is for some fault in a steam engine—with which last the witness had never had any experience whatever. These are not simply illustrations to enforce my argument, but cases in which I have borne a part. When the suit is before a jury of laymen confusion is worse confounded, for whatever they may have gathered through the trial lies inert and unassimilated upon their minds, and is well illustrated by the case of an old lady, who being asked if she knew all about a certain matter she was being catechised upon, answered: "Why, no! how can I know all about things I know nothing about?" This is the status of the lay jury in technical trials.

Those who have suits pending which are almost wholly technical in character should endeavor to have some voice in the conduct of affairs which concern them nearly.

The Vulcan Motor Driven Water Tool Grinder.

An illustration is herewith given of the new 20-inch electrically driven water tool grinder brought out by the Ransom Mfg. Company, Oshkosh, Wis. This machine is provided with an emery wheel 20 inches in diameter and 1½ inches thick, or wider if desired. The arbor which



THE VULCAN MOTOR DRIVEN WATER TOOL GRINDER.

selves for trying technical causes by reading up, or cramming, on the points in issue, but it seems to me that this cause would be upon a par with the information that engineers might gain by reading law books to enable them to dispense with lawyers, both would be superficial knowledge which would be unavailable for practical use when most needed. Technical cases on trial drag their slow lengths along for the simple reason that those in charge of them are not sure of their premises, and proceed cautiously, in important suits, through fear of making serious errors, but there is no reason why they could not be very much expedited by a change in the methods of conducting them as indicated in this paper.

Speaking for our own side of this contention—the engineers' side—I venture the assertion that there have been very few instances when they have felt that their lawyers have managed technical cases as they should have. Evidence of a certain class has been ruled out as immaterial and irrelevant, and precisely the same class of evidence admitted upon the other side directly afterward, and this through the inability of counsel on both sides to perceive the bearing of the said evidence. Witnesses are incontinently dismissed from the chair as incapable, and witnesses for the other side are allowed to give their views upon gas engines, for instance, when

carries the wheel is fitted with journals 8 inches long and 1 9-16 inches in diameter, which are ring oiling and dust proof. The emery wheel has a hole in it 10 inches in diameter, and is fastened by means of the poles placed in the collars. The bowl in front of the wheel is exceptionally large and deep, being 28 inches across the top in all directions, which prevents the spattering of the water on the operator and on the floor. The emery wheel dresser is made in the form of an attachment which can be fastened to the hood by means of a set screw, and is readily removed or set in position at a moment's notice, no setting of the dresser being required. The motor, which is mounted in the column, is a direct current motor for 220 volts, and the starting box shown in front of the machine is handy to the operator. This motor is of sufficient power to permit of the heaviest kind of grinding all day long without in the least heating the motor. The hood on the right hand side of the machine can be readily removed by merely raising it and then pulling it off. This enables the operator to get at the brush end of the motor to make any necessary repairs. The oiling device for the other end of the motor extends outside of the hood.

A correspondent desires to know of some factory equipped to make steel wind mills with galvanized fans.

Alexis W. Thompson on the Iron Situation.

Alexis W. Thompson, president of the Republic Iron & Steel Company, in an interview published in the *Chicago Evening Post*, presents an interesting review of the iron situation:

Basis of Iron Business.

A pound of iron at 1½ cents is commercially the cheapest thing that can be bought to-day. At first glance that may appear to be a rather broad statement, but a little study of existing conditions will reveal the matter in a somewhat different light. And such a study will tend to convince most persons of not only the truth of the statement I have made, but that the iron business of the country is on an entirely different and infinitely better basis than it has ever been before.

In 1876 the production of pig iron in the United States was 1,800,000 tons. In that year the production may be said to have reached the lowest point after a series of what then were considered fairly prosperous years in the business. In 1901, or just 25 years later, the production of pig iron in the United States amounted to very nearly 16,000,000 tons. This year the production so far has been at the rate of about 18,000,000 tons, and that it is not fully 2,000,000 tons greater than that is due entirely to the fact that the transportation facilities of the country are inadequate to the handling of all the business that is being offered.

This immense production of pig iron last year necessitated the mining of about 20,500,000 tons of Lake Superior ore, and this year there will be a still greater amount turned out, owing to the greater demand for pig iron. It takes 1 8-10 tons of ore of what is known as the 63 per cent. grade to make 1 ton of pig iron, and consequently, knowing the rate of ore production this year, it is an easy matter to figure out the probable output of pig iron. Last year was a big year in the iron trade, but 1902 is almost certain to eclipse it by several million tons.

Exhaustion of Ore Deposits.

Few people apparently stop to think that this immense production of pig iron—a production that has gone far beyond the expectations of even the most experienced and sanguine of iron and steel men—must necessarily be attended by a more or less rapid exhaustion of the ore deposits of the country. In making this statement I do not wish to be considered in the light of an alarmist, or as one who is predicting an iron famine within the near future, as there will be no danger of that for some time to come. Nevertheless, it is only a question of time when the point of exhaustion will be reached. Ore differs from many other articles, such as lumber, for instance, in that the supply cannot be replenished. Once a bed is exhausted that is the end of it. As to the probabilities in that direction, I will say that experts have calculated that at the present rate of ore production the next 25 years will see the supply of high grade ore in this country greatly depleted. The mines are not likely to be completely exhausted in that time, but the supply of really good ore will become very low.

As against the chances of an exhaustion of the ore supply it may be argued that it is hardly likely that the present rate of production will continue for any length of time. It is claimed that existing conditions are extraordinary, and that such conditions are always certain to be followed by reactions. Possibly this is to some extent true, but for all that I do not think that in this case reasoning that is based so largely upon past conditions is entirely safe. A great many people who are counting upon a serious reaction in the iron trade in the next few years seem to overlook the fact altogether that some entirely new conditions have arisen; that iron is entering more largely every year into the actual needs of the people, and that while the production of the last few years has been enormous, it still is considerably below the legitimate demands.

Demand for Building Iron.

This larger use of iron is to some extent the outgrowth of new and better methods of building and construction. The time is coming when every important

building in the business district of Chicago, as well as of every other city of consequence, will be of steel construction, and this of itself will create an enormous demand for the products of the iron and steel companies, and by the latter in turn upon the ore deposits. In addition to this, new cities will spring up throughout the unsettled portions of the West, there will be new railroad construction and the constant replacing of old construction by new by every railroad company, and for various other reasons will the demands for iron increase rather than fall off.

I do not mean by this that we are going ahead and show a steady increase, year by year, in the output of iron. Doubtless there will come from time to time periods of business depression, as has been the case in the past, when every branch of trade will suffer to some extent. But I do mean to say that, so far as I can figure out, the general tendency of prices for iron and steel products will be toward a higher rather than a lower level, and that any depressions which may come, in this industry at least, are likely to be but temporary and of short duration.

So far as prices of iron are concerned, the larger users are never worried about that so much as they are about conditions which tend to bring about an unsettled market. It makes little or no difference to a wagon manufacturer, for instance, what he pays for his iron, provided he knows that his competitor is compelled to pay the same price. And in this direction the organization of the large steel companies in this country has served a decidedly useful purpose. They should be given credit for one thing, if for no other, and that is that they have made a stable market for iron and steel such as has seldom, if ever, before been seen.

Large Consumers Satisfied.

There is, as I have said, no complaint on the part of the large consumers of high prices. Every one of these is well aware of the fact that, owing to the extraordinary demand for iron, a demand that greatly exceeds the capacity of all the mills, it would be an easy matter for the manufacturers of iron and steel to advance prices all along the line. That, however, is not the policy of the manufacturers. The large steel companies at present are holding up the price of ore, which they are enabled to do by reason of their control of the mines, for the purpose of preventing ruinous competition, and at the same time they have reduced the price of the finished product to the point where it merely shows a reasonable profit.

Stability of conditions is one of the principal objects aimed at by all of the large steel and iron companies to-day. Of course, in a way, that always has been the case, but until the last few years it has not been possible to achieve any really important results in this direction. There has, however, been a complete change of methods, partly in the matter of organization and partly in operation, which promises to bring about the desired results.

Own Ore and Fuel Supplies.

The large steel and iron companies of this country, such as the United States Steel Corporation, the Republic and two or three others, are not only well equipped for manufacturing purposes, but what is of as much, if not more, importance, they are in control of large ore and fuel supplies. Previous to the present system of organization it frequently was possible for the mine owners to shut off the supply of raw material from the manufacturers. This can no longer be done. The mill men own their own supplies of both ore and fuel, and consequently are in a position to regulate the markets for their product with a greater degree of success than heretofore.

As to the argument that all this tends to create a monopoly and encourages a wrongful use of the advantages enjoyed, I will say that so far it would be difficult for anybody to show that anything of that kind has been attempted. The facts are all the other way. As already pointed out, the demand for iron is still largely in excess of the capacity of the mills, a condition which in itself would tend to raise prices.

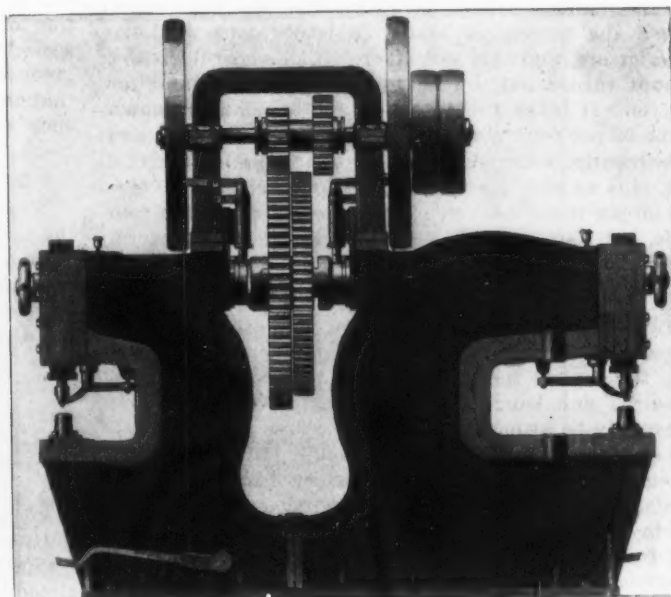
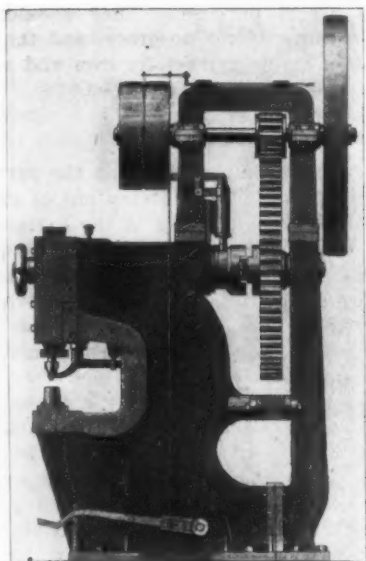
Mills Could Advance Prices.

Every buyer of iron to-day knows very well that it would be the simplest matter in the world for the mills to advance their product sharply above the present figures. The surprising thing to most of these buyers is not that prices are high, but that they are not higher.

Whatever may be the popular opinion in regard to those large industrial combinations commonly known as trusts, it certainly is the first aim of those engaged in the steel and iron business to create stable conditions in the trade. The idea upon which all of these corporations are working is that stability in trade conditions attended by a reasonable and steady profit is of more lasting value than conditions which give rise to frequent flurries in the iron market and temporarily large profits. This policy makes for improvement in not only the iron and steel business itself, but in all other branches of trade as well, for the reason that general business is at all times largely dependent upon iron and steel conditions.

The Wais-King Single and Double Punch and Shear.

The two punches here illustrated, built by the Wais-King Tool Company of Cincinnati, are designed so that



THE WAIS-KING SINGLE AND DOUBLE PUNCH AND SHEAR.

the belt runs overhead, instead of from below. The first machine is single geared, but the double gear can be applied if necessary. An advantage derived from this construction is that when the machine makes 25 strokes on heavy work by means of the extra gear, it will make 45 strokes on lighter material with the same belt speed. A clutch is provided which can be set to different thicknesses of metal, and which automatically stops the punch in its most elevated position.

The other machine is double geared, the small pinion being engaged for heavy work. Both pinions are mounted upon the same sleeve and move together, so that when one is in the other is out of gear. The throats are 12 and 24 inches in depth.

The sale of the buildings of the Pan-American Exposition has at last been completed, the Chicago House Wrecking Company having purchased them for \$80,000. Possession of the property has been given to the buyers, and the work of tearing down the buildings is to commence at once. The figure of the Goddess of Light, that occupied the apex of the electric tower, has been sold to David Humphrey, a popcorn vender of Cleveland, Ohio, and is to be removed to that city, where it is destined to occupy a position on top

of a popcorn pavilion at Euclid Beach Park. How have the mighty fallen! Charles T. Harris of the Chicago Wrecking Company is quoted as expressing a belief that all of the steel beams and the iron work has been sold. Several parties have been after it. Some of it may go to St. Louis, while other parts will be used in small halls.

The Cerro del Mercado of Durango, Mexico

One of the most famous of the many and varied mineral deposits of Mexico is that of the Cerro del Mercado, near the city of Durango, the "cerro," or hill, of high grade, brown hematite ore, of which so many inaccurate stories have been printed, both in the native and foreign press, as to make it appear almost legendary.

Sometimes it is referred to as "a solid mountain of silver," and at others the cerro is given credit for being the unexplored abiding place of fabulous alluvial riches, only awaiting the prospector's pick to make millionaires of its fortunate exploiters. The truth in relation to this deposit of mineral wealth is interesting enough, though less romantic than the many fables for which it has served and still serves as a peg. The hill takes its name from Vazquez de Mercado, who, according to historical accounts, was led by stories of the existence of a mountain of pure silver in the northern part of Mexico to

equip an expedition to go in search of it. He failed in his attempt, but at a later date another explorer, Ibarra, discovered the hill, which proved to be iron instead of silver.

The Cerro del Mercado is situated some 2 miles north of the city of Durango, in the valley of the Guadiana. The city itself has an altitude of 6207 feet above sea level. It was founded in 1563.

Many estimates have been given as to the extent of this deposit and the approximate number of tons it contains. Some of these are ridiculously extravagant, as, for instance, an account which places the hill top at 2000 feet above the level of the plain from which it arises, whereas, in reality, from 500 to 700 feet is the extreme height of its most lofty spurs. It is a little over a mile in length, and about a third of a mile wide. People given to mathematical exercise have computed that the mass above ground contains approximately 700,000,000 tons of ore, which averages, by analysis, 60 per cent. metallic iron. Much of it contains 65 per cent., and samples have been tested which showed still better results. As to what is below the surface little can be said, no thorough examination having been made.

At present the hill is being worked to a limited extent by the Mexican National Iron & Steel Company, whose works are adjacent thereto.

J. J. D.

Canadian News.

Sault Ste. Marie Steel.

TORONTO, March 1, 1902.—On February 18 a first test was made of the new Bessemer converters at the works of the Algona Iron & Nickel-Steel Company, Sault Ste. Marie, Ontario. Pig iron from the Midland Furnace was used. The next step will be the starting of the rail mills, whose product, it is promised, will soon be on the market. The company, it is said, have made a contract with the Michigan Central to supply all the rails required in 1902 on the Canada Southern. It is just 15 months since the ground was broken for the construction of the Algona Company's Works. Mr. Clergue some time ago notified the Government that his company would be producing steel about February 1. The Government is interested for the reason that he holds a contract to deliver a large quantity of rails for the intercolonial system.

Dominion Steel & Coal Companies.

A. J. Moxham's announcement on the 17th inst. that he had resigned the office of general manager of the Dominion Iron & Steel Company is taken as another sign that the control of the company has shifted into the hands of Canadian shareholders. His interests in the United States, Mr. Moxham explained, made such demands upon him that he could no longer devote his attention to the Sydney enterprise. He would, he said, remain a director, and for the present would retain the vice-presidency. As the staff was now well organized and every technical point in the manufacture of steel had been solved, he considered his work as general manager done. No successor will be appointed immediately. The general conduct of the work will be under the superintendency of David Baker, with James Ross managing director and G. H. Duggan assistant. There is an idea that these men will make a special study of economy in the management of the works. James Ross, the Canadian capitalist, who is now at the head of the Dominion Coal Company and is managing director of the Dominion Iron & Steel Company, is known to have the confidence of the bank that is chiefly interested in the enterprise. It is expected that Mr. Ross will in no long time hold the office of president of the steel company, as he is now president of the coal company. The community of interest that holds the two companies so closely associated has given rise to rumors from time to time that they are to be amalgamated.

Transferred to the Free List.

A number of orders in Council have been passed at Ottawa transferring to the free list certain articles entering into Canadian manufactures. They are as follows:

Hemp bleaching compound for the manufacture of rope.

Silver tubing for the manufacture of silver ware.

Steel for the manufacture of cutlery.

Steel castings, in the rough, for the manufacture of scissors and hand shears.

All articles entering into the construction and forming part of cream separators.

Another order in Council has been passed providing for the payment of a drawback of the duty paid on imported materials used in the manufacture of machinery, and on structural iron and steel for use in the building and equipping of manufactories for making sugar from beet root. By an amendment to the Tariff act last year it was provided that such machinery and structural material should be admitted free, but this amendment expires in April.

Pig Iron Bounties.

The bounties paid by the Dominion Government for the production of pig iron during the last year amounted, according to the Auditor-General's report, to \$551,259, which is \$112,962 more than in the previous year. The bounties were apportioned as follows: Canadian Iron Furnace Company, Three Rivers, \$16,614; Midland Iron Works, \$59,169; Deseronto Iron Company, \$27,468; Dominion Iron & Steel Company, Sydney, \$55,287; Electric Reduction Company, \$11,731; Hamilton Iron & Steel Company, \$12,455; John McDougall & Co., \$23,791; Nova Scotia

Steel & Iron Company, \$66,711. There was paid out in bounties on iron puddled bars \$16,703, an increase of \$6581. The Hamilton Steel & Iron Company received the whole amount. The bounties on steel ingots amounted to \$100,057, or \$35,097 in excess of the year previous. The Hamilton Steel & Iron Company received \$28,310, and the Nova Scotia Steel Company \$71,746.

Tariff for Tariff.

In the House of Commons on the 24th inst. John Charlton, one of the Canadian members of the Joint High Commission, introduced a resolution calling for measures to equalize the tariffs of Canada and the United States. Reciprocity is what Mr. Charlton has in view, but he proposes, if that cannot be got, to level up the Canadian tariff to the standard of the Dingley bill. He showed statistically that the trade at present between the two countries is very one sided, being strongly against Canada, owing to the disparity of tariffs. He would advise the adoption of a very high tariff by Canada, with the condition embodied in it that when the United States should concede a free market for Canadian natural products the Canadian tariff rates should be reduced 40 or 50 per cent., or even more, in favor of that country. His speech received great attention in the House.

Insufficient Protection.

Canadian manufacturers of cutlery are moving for more protection. A statement in their behalf was made in the House the other day by C. B. Heyd, M.P., who got his information from the Bailey Cutlery Company of Brantford, Ontario. It is as follows: When the company went into business ordinary shears were sold in the United States and in Great Britain at \$4.80 per dozen wholesale, which with 30 per cent. duty made them cost \$6.24 in Canada. Last year and up to the present time, while the prices in Great Britain and the United States remained the same, the travelers for the American houses had reduced the price to Canadian customers to \$2.88 per dozen in an effort to crush the Canadian firm.

The concession of free steel and of free shears in the rough partially meets the manufacturers' wishes.

At the dinner of the Manufacturers' Association in Montreal, held on February 27, Archibald Campbell, M.P., a strong and influential supporter of the Government, declared himself in favor of higher duties. We must build up the manufacturing industries, he said. He pointed out that \$25,000,000 worth of partially manufactured goods was imported last year from the United States on which no duty was paid. It is significant when two Ministerialists of the status of Mr. Campbell and Mr. Charlton call for higher duties.

Aid for Shipbuilding.

John Bertram of the Bertram Engine Works, Toronto; W. E. Redway of the Polson Iron Company, Toronto, and John J. Long of the Collingwood Shipbuilding Company—the three representing the Canadian steel shipbuilding industry on the great lakes—waited on the Government on Thursday. They wanted more protection. Their plea was grounded on the facts stated in Mr. Bertram's recent open letter to the Minister of Customs, which facts were stated in this correspondence some weeks ago. They asked that the rebate for duty paid on imported material used by shipbuilders be increased from its present rate of \$1.15 per registered ton to \$3 per ton.

Minor Notes.

The Municipal Councils of Victoria and Lambton counties, Ontario, have petitioned for an extension of time for the importation of free mining machinery and of structural iron and steel for the building of sugar factories. They ask that the limit be made one year further in the future, to April 1, 1903.

John A. Pillow of the Pillow & Hersey Mfg. Company, Montreal, whose rolling mills and works are among the largest in Canada, died some days ago, aged 62. Mr. Pillow's career in trade began in 1872, when he acquired the old established business of T. D. Bigelow & Co., in partnership with Randolph Hersey. This busi-

ness was some years later taken over by the Pillow & Hersey Mfg. Company.

The estimated loss in the fire at the Rhodes, Curry & Co. Works, Amherst, Nova Scotia, is \$30,000, the insurance on which was \$20,000. Rebuilding is to be begun at once. The foundries, machine shops and planing mills were uninjured.

According to the report of the Ontario Crown Lands Department, the pig iron output of the province in 1901 was 116,370 tons, an advance of 53,984 tons over the output of 1900. Of steel the total production was 14,471 tons.

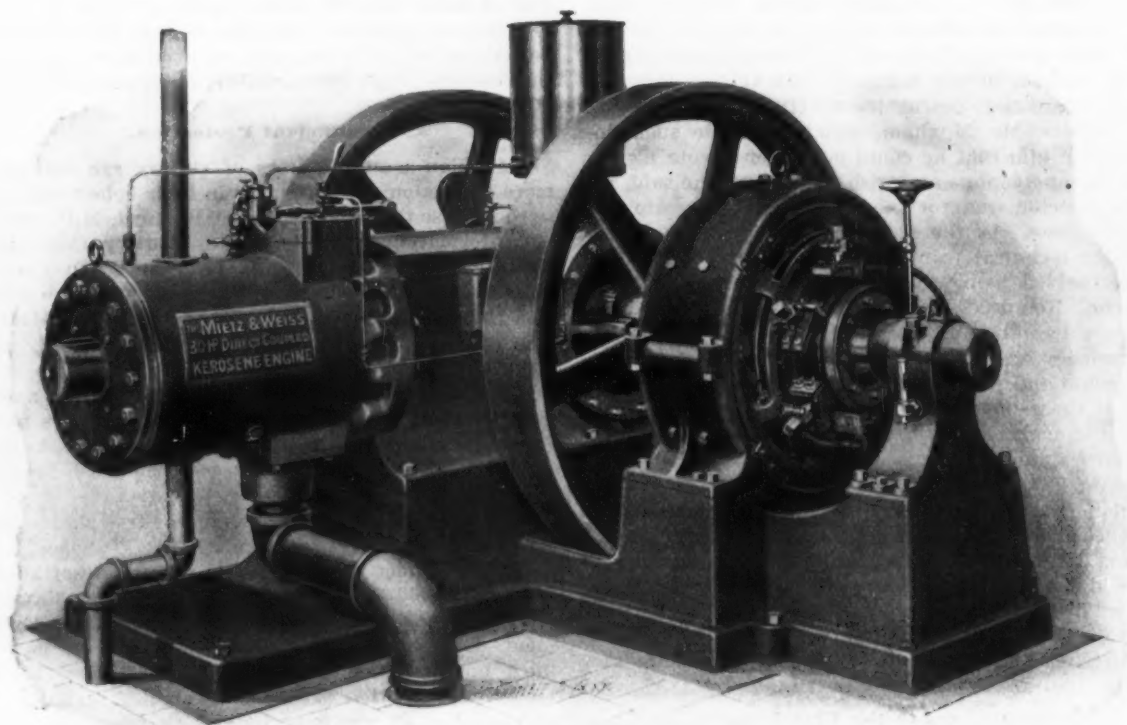
The Dominion Bridge Company have been permitted to increase their capital stock from \$500,000 to \$1,000,000.

Col. Robert M. Thompson of the Orford Copper Company, New Jersey, is one of the petitioners for the incorporation of the Huronian Company, Limited, with a capital of \$1,000,000. Power is asked to generate electricity for the mining of ores in the Sudbury district, for

careful man, and had gone under the switchboard to make a connection on a dead switch. In some manner he made the unfortunate mistake of starting to connect up a live cable. A short circuit was created and the flash set fire to Johnson's clothing. He was seriously burned from head to feet before help reached him. Those familiar with all the circumstances agree that the accident was in no way due to carelessness on Johnson's part, but simply an unfortunate, regrettable mistake. That so many years should go by without several similar accidents in connection with an installation so new and novel is remarkable.

The Mietz & Weiss Direct Connected Kerosene Engine.

The successful operation of the kerosene engine in isolated electric lighting plants opens a large and particularly useful field for it. Its ease of management, economy and safety commend it as a desirable motor



THE MIETZ & WEISS DIRECT CONNECTED KEROSENE ENGINE.

the acquiring and operating of smelting works, and for the building of a railway to connect with the Canadian Pacific Railroad, the Manitoulin & North Shore Railway and the Spanish River. The bill was amended materially in committee.

The Canadian Pacific Railroad Company have purchased 380 acres of land in the east end of Montreal as a site for their projected locomotive and car works.

A representative of the Deering Harvester Company, Chicago, has visited Fort William, and been in negotiation with the Town Council there with the object of locating a Canadian factory for the company. He has been in communication with Owen Sound, Brantford and other Ontario towns in regard to the same subject.

The limited supply of soft coal and coke is still embarrassing manufacturing operations in Ontario.

C. A. C. J.

It is worthy of note that the first fatal accident to occur to an employee of the Niagara Falls Power Company, in the electrical department, has just been recorded. The wonderful installation of this company was instituted in 1895, and for all seven years have passed none of the men engaged about the deadly wires has met death until Wednesday, February 26, when Melvin A. Johnson, an assistant electrician, was so badly burned that he died within ten hours. The deceased was a

in many situations where the use of a steam engine would be out of the question.

The engine built by August Mietz of 128 Mott street, New York, is of the two-cycle, compression type, receiving a power impulse every revolution. It is furnished with a sensitive governor that enables it to maintain the speed required by belted or direct coupled generators. A small pump operated and controlled by the governor injects the precise amount of kerosene (ordinary lamp oil) directly into the cylinder, where it vaporizes and mixes with the air for combustion.

The parts of an oil engine requiring lubrication are comparatively few, but it is of the utmost importance for those to be properly attended to. Ring oilers in this case are used for the main bearings, as shown in Fig. 2, and the lubrication of the crank pin and the piston is taken care of as shown in Fig. 3. An oil reservoir is placed at the side of the engine frame, and at a certain part of each revolution there is a partial vacuum in the crank chamber and also in the cylinder, which is sufficient to draw the necessary oil up the copper pipe and down past the sight holes, which permits its regulation by the sight feeds above. The oil for the crank drops into a groove on the top of the rod, whence it finds its way along to the pin. These automatic oiling devices, it will be noted, are only operated when the engine is running; when the engine is stopped they

require no looking after. One peculiarity of this, as of other engines, is that it has no throttle valve. When the engine is to be stopped it is only necessary to throw up the little finger which operates and regulates the admittance of oil.

The Car Famine in the Coke Regions.

The situation in the coke regions seems to be getting worse instead of better. Advices from Uniontown, Pa., state that there has never been anything like the present congestion in the coke regions both as to shortage of cars and lack of motive power.

Conditions have been growing steadily worse for months, until the activity of the region is practically paralyzed. Men are obliged to be idle for two and three days in the week.

Even when empty cars can be had, the sidings at all the coal yards are so full of loaded cars that there is

hearth steel castings, having retired, the company have been reorganized on a much larger scale. The new organization have taken the name of the present owners, George B. Leighton and Clarence H. Howard, and are now known as the Leighton & Howard Steel Company. They have a large modern cast-steel plant at East St. Louis, Ill., the capacity of which has, within the past few months, been increased to about 100 tons of finished steel castings per day. J. C. Davis, formerly with the Sargent Company at Chicago, is manager of the plant.

The Colonial Steel Company.

The Colonial Steel Company, with offices in the Bank of Commerce Building, Pittsburgh, have made a partial start in their new plant, which has been under construction for some months at Colonia, on the Pittsburgh & Lake Erie Railroad, about 20 miles from Pittsburgh. The entire plant will not be in operation until after July 1. The puddling department at the present time consists of ten furnaces and train of muck rolls, and was put in operation on double turn last week. The building is equipped for eight additional furnaces, and these will probably be erected before long. Four crucible melting furnaces will probably be in operation in the latter part of March, and the hammer department about April 1. Three of the main buildings are finished, and two more are nearly ready. Nearly all the equipment is on the ground ready to be set up and work on the building of the balance of the plant will be

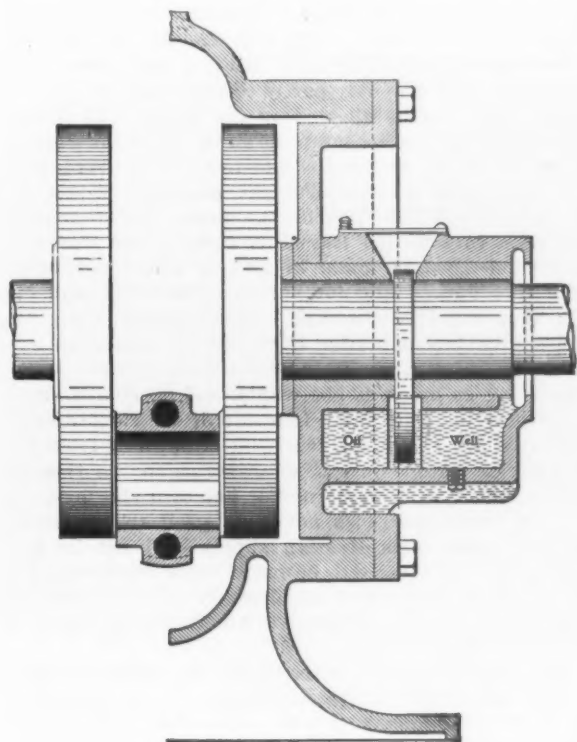


Fig. 2.—Ring Oiler for Main Bearing.

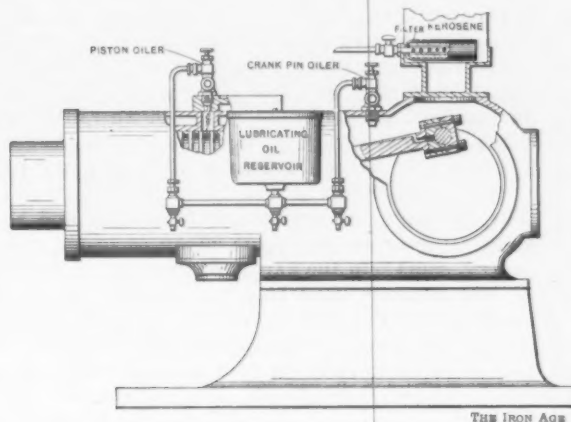


Fig. 3.—Sketch Showing Crank Pin and Piston Lubrication.

THE MIETZ & WEISS DIRECT CONNECTED KEROSENE ENGINE.

no place to stand the empties. At the Stewart Iron Works, whose coke is chiefly consumed by their own furnaces at Sharon, about 150 cars of coke are stacked on the yards, and this week they charged the ovens for 72 hours' coke. They are running little more than half time, and the men are making hardly enough to keep their families.

At the Leith works of the Frick Company about 200 cars are piled up, and for weeks past the works have been running five days in the week. This plant has a capacity of 35 cars daily, but cannot get transportation for half that amount.

At the Oliver Works about 100,000 tons of coke are on the yard, and the plant is able to run only half time. Superintendent Keighley says the blockade is the greatest ever known, and they are losing large sums of money by not being able to fill orders.

Mountains of stacked coke and long lines of filled cars standing on the sidings are now the rule throughout the region, and moving coke trains are the exception. Conditions are as bad for both operators and men as they were during the panic, except that the enforced idleness is caused by lack of transportation facilities instead of by lack of orders.

The old members of the Shickle, Harrison & Howard Iron Company, St. Louis, Mo., founders of open

pushed as fast as possible. The Colonial Steel Company are composed mostly of parties who were formerly connected with Howe, Brown & Co., Limited, steel manufacturers of Pittsburgh, whose plant was taken over by the Crucible Steel Company of America. The concern will manufacture tool steel, crucible and high grade open hearth steel. The officers of the company are James W. Brown, president; George A. Howe, first vice-president; T. H. Childs, second vice-president and general manager, and Charles M. Brown, secretary and treasurer.

The Sharon Brass Mfg. Company.—A reorganization of the Sharon Mfg. Company of Sharon, Pa., was effected last week. A new company were formed to be known as the Sharon Brass Mfg. Company. The object of the new concern is to enlarge on the operations of the original concern, manufacturing bronze and brass castings, babbitt metal and plumbing goods. The new company are capitalized at \$50,000. The plant of the Sharon Mfg. Company, which was taken over, is to be enlarged. The following officers were elected: President, M. O. Shrock; treasurer, John S. Leslie of the Leslie Hardware Company, and secretary, J. L. Merritt of Greenville, S. C. The directors are: S. C. Koonce, Clarksville; R. A. Wilson and T. L. Woodward, Pittsburgh; John S. Leslie, M. O. Shrock and J. L. Merritt.

American and British Iron Markets.

GLASGOW, February 21, 1902.—The position of pig iron is becoming deeply interesting, and sensational developments may occur any day. As has already been stated in your columns, inquiries for supplies came over from your side last week. But something more than inquiries have come this week, and several sales—one named to me of 15,000 tons in one lot, and there are others—have been made to New York. These transactions have been in warrants, and the presumption is the buyers in America will ship the warrant iron, if your market continues to call and cheap freight can be obtained; if not, that they will resell the warrants when the cover is no longer needed. Considerable sales of Cleveland warrants through London have also been made to America, and inquiries have been afloat in the freight market these last few weeks for tonnage for iron both from Middlesbro and from Glasgow to United States ports. Looking at our small stocks it is not surprising that warrants have gone away with a bound. Indeed, there would seem to be justification for a greater rise than has yet taken place. At the end of 1901 the prices of warrants were: Scotch, 49 shillings; Cleveland, 43 shillings 3 pence; Cumberland hematite, 55 shillings 4 pence. Middlesbro hematite warrants had disappeared from the market, as the stock was reduced to 300 tons. At the time of writing Scotch warrants are 54 shillings 1 pence; Cleveland, 48 shillings 3 pence, and Cumberland, 59 shillings 9 pence. The advance this year, therefore, has been 5 shillings in Scotch and Cleveland, while Cumberland hematite is still relatively cheaper than either. The improvement in hematite is, however, really greater than the above comparison would indicate, although the difference between this quality and ordinary iron has not yet reached its normal proportions. Most of the increase in warrants above noted has occurred within the last two weeks. And this week makers of Scotch hematite have put up their price 2 shillings per ton.

There is nothing in our own finished iron and steel trades to cause or support these advances in pig, nor is there any "spurt" in the export demand to account for them. The advance must be solely ascribed to the actual and prospective, or at all events potential, demand from America. With the insatiable appetite for pig iron reported to exist on your side, it would not be difficult for America to absorb all our stocks and leave us famished. There are only 54,000 tons in the Glasgow stores, 142,000 in Middlesbro, and 18,000 tons in the Cumberland stores, and not all of that by any means is available, some being held in reserve by consumers for their own sole use. There are now as many furnaces in blast in Scotland as at this time last year, and the output of them is going direct into consumption. But there is no talk of lighting up more, with the present outlook of trade.

Finished iron and steel makers are better off to this extent, that they are not now meeting with the competition of German stuff in our markets (although German material is still coming forward in fulfillment of past contracts); but on the other hand they have the prospect of reduced home demand as the activity in the shipyards abates. Their difficulty is that crude iron is already too dear in relation to finished material, and that it is getting dearer when there is no hope of raising the prices of finished material. Coal, too, is still too high. The negotiations referred to in a previous letter have resulted in the continuance of the Conciliation Board in the coal trade on its previous basis until May 31, by which time a new basis has to be devised. This means that miners' wages cannot be reduced more than 6 pence per day before May 31, and will probably not be dealt with at all before that date, so there is not much prospect of any substantial reduction in the price of coal in the immediate future to afford our iron masters some relief. They are, as I have said, relieved for the time being from German competition, but not much faith is rested here in the reported industrial improvement in Germany. The exports of iron and steel from Germany have eased off, not, because the home demand

there has increased, but because stocks have been reduced by the forced sales of the last few months. But if production goes on at the same old rate without any increase in the home consumption there will soon be congestion at home and auctioning again abroad.

Pig Iron Imports from Russia.

Meanwhile a new sensation has been imparted to our markets by the appearance of pig iron here from South Russia—or rather of tales of it, for the iron itself has not yet arrived. About 2000 tons have been sold already, and other 1000 tons are on offer to make up a cargo of 4000 tons now awaiting shipment by steamer from Kertch, in the Sea of Azov, to Glasgow. The price is 47 shillings per ton, landed on quay here, and the quality resembles Cleveland foundry iron. This price is just a shade under what it costs to bring in Cleveland iron to here just now, perhaps about a shilling a ton in favor of the Russian. But allowing only 10 shillings per ton for freight and dues (which is little enough), there cannot be more than 37 shillings left to the shipper, and there must be considerably less to the smelter at the furnace. Pig iron cannot be produced at anything like that price in Russia, and there must be a heavy dead loss only partly compensated for by any bounty that may be allowed on the export. In Russia (as in Germany) there has been an artificial inflation of the iron industry within the last few years. With government orders and government promises production was stimulated far beyond the country's consuming capacity. In 1900 the Russian output of pig iron was close upon 3,000,000 tons; in 1901 it would not be so much (the figures are not yet available), but still far more than could be absorbed. Consequently, there has been a great accumulation of stocks for which an outlet has been sought in Italy or elsewhere. Italy seems to have got as much as she wants, and now Great Britain is receiving attention. It is one of the curiosities of trade that we should be receiving crude iron from the far East of Europe just when America in the West is drawing upon us to make up for her own shortage. It is an ill wind that does not blow good to somebody; But, of course, this Russian supply will not be permanent, nor is it likely to be large. One must regard it merely as an interesting incident, of quite a different character from the prospective American run upon us for crude iron and steel.

The unprofitable character of the iron trade last year is well illustrated in the experience of the Wilson & Union Tube Company, whose shareholders held their annual meeting in Glasgow yesterday. This concern made no profit at all last year. At the beginning of the year an association of tube makers was formed for the regulation of prices, but it soon fell to pieces because of this agreement as to the regulation of both export and home rates. This specially affected the Wilson Company, because 80 per cent. of their output is exported, and when cutting began in the export trade they felt it more severely than others who market most of their output at home. Between January and December the difference in price of boiler tubes was £6 or £7, although raw material, fuel and wages remained at practically the same rates all the year and administrative charges, of course, remained the same. To meet the situation this company are closing one of their works so as to economize costs by concentrating production in one establishment while the rate cutting continues. It seems to be the case, for some reason or other, that tube making is only profitable when the makers agree upon a common schedule of prices. And why they do not always do so it passes the wit of man to perceive.

A cable inquiry has been received to-day from the United States for 10,000 tons steel billets. Adding this to previous inquiries makes a total of 70,000 tons for which quotations have been asked. To what extent business will result remains to be seen. Canada has lately been buying black sheets here largely, and to-day cables inquiries for 10,000 tons more, indicating a stoppage of supplies from the States.

B. T.

A German Rolling Mill Engine for Grand Crossing.—German newspapers report that Ehrhardt & Sehmer of

Schleifmuehle, near Saarbruecken, Germany, have received the order for a 5000 horse-power three-cylinder reversing rolling mill engine for the new mill at Grand Crossing, Ill.

The Ship Subsidy Bill.

WASHINGTON, D. C., March 4, 1902.—The new ship subsidy bill, introduced at the present session by Senator Frye of Maine, has been brought before the Senate at an unexpectedly early date, owing to the rapidity with which other measures on the Senatorial programme have been disposed of. Upon a motion by Senator Frye the bill was made the "unfinished business" of the Senate last Saturday; and on Monday the author of the measure occupied nearly the entire day in an elaborate speech, in which he explained the provisions of the bill at length and argued in favor of its early passage.

The discussion in the Senate upon Senator Frye's motion to take up the bill was brief, but very significant. Mr. Frye stated that it was his purpose to urge the bill continuously, but that he would yield at any time for appropriation bills or important emergency measures. Senator Clay of Georgia, who was one of the strongest opponents of the shipping bill in the last Congress, stated that he would be absent from Washington for several days, but would not object to the consideration of the bill, with the understanding that it would not be passed to a vote until he had reasonable opportunity to address the Senate on the measure. He added, significantly, that there was no disposition on the part of the minority side of the chamber "to do anything in the world except to present arguments a reasonable length of time and after we get through discussing it, to vote." The importance of this announcement will be appreciated when it is remembered that the minority in the last Congress several times considered the advisability of adopting filibustering tactics against the bill on the ground that the character of the measure was such, and the amount of money involved was so large, as to justify any method of bringing about its defeat. Mr. Clay's statement, therefore, carrying the assurance that no attempt will be made to filibuster against the bill, was very encouraging to the friends of the measure, who believe it will pass by a comfortable majority as soon as it can be brought to a vote.

In the course of his speech upon the bill Senator Frye said that the purpose of the measure and its reasonably certain results would be within ten years "to establish the maritime supremacy of the United States in the trade on the Pacific with Asia and the Philippines, and on the Atlantic in the trade of the Gulf of Mexico and the Caribbean Sea; to establish on a secure basis the trade between the United States and the republics of South America, and to give the United States a reasonable representation in the trade of the North Atlantic."

"Incidentally," he continued, "it will give to the United States an auxiliary navy second only to Great Britain's; an ocean mail service superior to that of Great Britain, France or Germany in all respects—except for a few years more possibly the service between New York and England and the North Sea ports. It will so extend shipbuilding as to transfer in time, certainly from Germany, and possibly from Great Britain, to the United States, the center of that industry, as the centers of other industries have been recently transferred. Finally, it will give to the United States a measure of maritime independence corresponding to our industrial and agricultural independence. This object and these results are perfectly well understood abroad and afford the reason why the measure is regarded with undisguised apprehension and hostility by the shipping interests of Europe."

Taking up the present condition of the merchant marine, Senator Frye emphasized the small amount of merchandise which was carried in American ships, even in the present prosperous times. Under the policy of protection, he said, the country had developed enormously, and every industry except American shipping had felt the impetus which resulted from protection. The benefits of the bill, he said, would redound quite as

much to the farmers, the mechanics and producers of all classes as to shipowners, for they would thus be guaranteed against the disastrous losses that would surely accompany the breaking out of a war between any of the great ocean carrying nations of the world like England and Germany.

Mr. Frye expresses the opinion that the bill will not require more than ten days' or two weeks' debate, but the date for taking a vote will depend upon the amount of business which temporarily displaces the consideration of the shipping bill.

W. L. C.

The Capacity of Our Iron and Steel Works.

In the preface of the fourteenth edition of the Directory of the Iron and Steel Works of the United States, just issued by the American Iron and Steel Association of Philadelphia, James M. Swank makes some comparisons as to the number and capacity of the plants in 1898 and in 1902. Of course, it must be understood that it is practically impossible that the full capacity be ever reached, since the plants cannot all be active for many reasons. It is a general fact, too, that the rated capacity is not obtained in the majority of cases. Still the figures illustrate well how our equipment has grown and has been modernized. We present the following abstracts from the report:

Blast Furnaces.—In the edition of the Directory for 1898 we described 420 completed furnaces as being then active or as having been reported to us as likely to be some day active. We added, however, that we felt certain that about 50 of these furnaces would never make another ton of pig iron, thus reducing the number of furnaces that were then active or likely to become active to 370. We gave the annual capacity of these furnaces as amounting in round numbers to 18,000,000 gross tons, not all of which capacity could, of course, be employed at the same time. In the present edition we describe 406 completed furnaces, either active or reported to us as likely to be some day active. Eliminating some of the furnaces in the latter category as being in our opinion dead for all time, there remain less than 400 live furnaces to-day. But many of these are the largest that the world has ever seen. Their annual capacity we place in round numbers at 24,000,000 gross tons, an increase since 1898 of exactly 33 1-3 per cent. Our actual production of pig iron in 1901 was \$15,878,354 gross tons. Since 1898 we have transferred 58 furnaces to the abandoned, dismantled, or inactive list.

Rolling Mills and Steel Works.—In the edition of the Directory for 1898 we enumerated 504 completed rolling mills and steel works and 4 in course of erection. In the present edition we enumerate 527 completed rolling mills and steel works, 28 in course of erection, and 1 being rebuilt, making a total of 556. In addition the Directory mentions 1 plant which is to be rebuilt and 6 plants that are projected.

Puddling Furnaces.—The number of puddling furnaces in April, 1898, each double furnace counting as two single furnaces, was 3889. In November, 1901, there were 3251 puddling furnaces. The highest number of puddling furnaces reported in any edition of the Directory was in 1884, when 5265 were mentioned.

Bessemer Steel Works.—The total number of completed Bessemer steel works in April, 1898, including two Clapp-Griffiths plants and one Robert-Bessemer plant, was 45, and the whole number of converters was 100. In November, 1901, there were 35 standard Bessemer steel works with 81 converters, one Clapp-Griffith plant with one converter, two Robert-Bessemer plants with three converters, and nine Tropenas and "special" Bessemer steel plants with 15 converters; total number of Bessemer plants, 47; total number of converters, 100, the same number as in 1898. The increase in the number of small Bessemer plants in the last few years is noteworthy. Since April, 1898, seven standard Bessemer plants have been placed on the retired list, but the capacity of the remaining standard plants has been increased. The annual capacity of the completed Bessemer converters in April, 1898, was 10,633,000 gross tons; in November, 1901, the capacity of the built and building converters was 12,998,700 tons.

Open Hearth Steel Works.—In the Directory for 1898 we described 99 completed open hearth steel plants, with 281 completed furnaces, and in the present Directory we describe 112 completed plants, with 403 completed furnaces. In 1898 no new plants were being built. In November, 1901, 12 open hearth plants with 40 furnaces were building, one plant was to be rebuilt, 13 plants were projected, and six furnaces were being added to existing plants. The annual capacity of the 403 completed and the 46 building open hearth furnaces, in ingots and direct castings, in November, 1901, was 8,289,750 gross tons, against 3,522,250 tons of the completed furnaces in 1898.

Growth of Basic Steel.—In the Directory for 1898 we indicated the character of the product made at our open hearth steel works, whether acid or basic steel, or both. Of the 99 completed open hearth plants in April of that year 43 were prepared to make basic steel, and of ten open hearth plants that were projected at that time a majority would probably make basic steel. In the present Directory 167 open hearth furnaces are described as making acid steel and 236 as making basic steel; total, 403 furnaces. The acid furnaces have an annual capacity of 1,874,650 gross tons of ingots and castings, and the basic furnaces of 6,415,100 tons.

Crucible Steel Works.—In November, 1901, there were 45 completed crucible steel plants, three building, and one plant projected. The number of pots in the completed plants was 2896, and the aggregate annual capacity of these plants was 175,000 gross tons of ingots and castings.

Steel Castings.—In 1898 there were 47 open hearth plants which were prepared to make steel castings, and in November, 1901, there were 56, but in the meantime the capacity of many of the old plants had been increased. The production of open hearth steel castings has greatly increased since 1898. As already mentioned, the number of small Bessemer plants has also increased since 1898, all of which make steel castings. Steel castings are also made by 14 crucible plants.

Rail Mills.—In the edition of the Directory for 1898 we enumerated 51 rolling mills which were prepared to make standard, girder, light T, and other iron and steel rails. In the present edition we enumerate 45 completed rail mills and three building.

Structural Mills.—The whole number of works which are now equipped to manufacture all kinds of rolled structural material, including beams, beam girders, zee bars, tees, channels, angles, bridge rods, building rods, plates for bridge work, structural tubing, &c., is 67. This branch of the American iron trade, like the production of steel castings, has made marvelous progress since the appearance of our last Directory. It has been a leading factor in the development of our open hearth steel industry and in the enlargement of our Bessemer steel industry beyond the production of rails.

Plate, Sheet, and Skelp Mills.—In the present Directory we enumerate 223 completed plate, sheet, and skelp mills, 13 building and two projected. In the Directory for 1898 we enumerated 230 completed, two building, one partly built and one projected.

The Peden Iron & Steel Company.—Peden & Co. of Houston, Texas, announce that the firm of Peden & Co., composed of D. D. Peden, E. A. Peden and D. D. Peden, Jr., have transferred their business to the Peden Iron & Steel Company, with an authorized capital stock of \$250,000. The officers of the new company are D. D. Peden, president; E. A. Peden, vice-president and general manager, and D. D. Peden, Jr., secretary and treasurer. The company deal in sheet iron, tin plate, roofing materials, pipe valves and fittings, nails, wire, stoves, telephone and telegraph supplies, tools and machinery.

Dr. W. B. Phillips, director of the University of Texas Mineral Survey, of Austin, Texas, has followed his admirable first bulletin on Texas petroleum with a second bulletin entitled "Sulphur, Oil and Quicksilver in Trans-Pecos, Texas." This is soon to be followed by a report on the fuels and asphalt rocks of Texas.

Improved Blowers for Gas Producers.

Very much has been done during the last few years along the line of improvement in making producer gas; most plants starting with the old Siemens producer as a basis, and making more or less improvement on it along the line of automatic feeding apparatus, shaking grates, revolving grates and also water sealing the ends of producers. At the same time the producer has grown very largely in capacity, until at the present time some of the producers are gasifying 2500 pounds of coal per hour. Along with the increase in capacity of producers the serious problem arose as to the most effective blast to be obtained. Setting aside the question of clinkering of coal, there is no doubt that dry air blast is the most efficient that can be used, as the following analysis of Professor Akerman's tests would indicate:

	Per cent.
CO ₂	2.1
CO.....	27.5
C ₂ H ₄	0.5
CH ₄	4.9
H ₂	8.3
Calorific power.....	1,549

In the practical working of producers, however, it is absolutely necessary that a certain amount of steam must be introduced in order to prevent clinkering, and the question now arises as to the best method of introducing steam into the producer. On a great many producers we find the blower simply made of a piece of wrought or cast iron pipe with a central steam jet. Sometimes this is varied by the pipe being made square instead of round; or again we find the blower having a central jet with slightly tapered pipe growing larger in diameter as it leaves the steam jet or the blower; but all of the above types, as will be noticed in the tables hereafter given, have very little power of delivering a large quantity of air against counterpressure. In fact, most of them are so designed that when they are forced beyond a certain capacity the steam itself occupies the entire blower, allowing very little or no air to be carried into the producer.

The following table gives the composition of the producer gas where moderate excess of steam is used, and where great excess of steam is used:

	Moderate excess of steam.	Great excess of steam.
CO ₂ , per cent.....	5.30	8.90
CO, per cent.....	23.50	16.40
CH ₄ , per cent.....	3.30	2.55
H ₂ , per cent.....	13.14	18.60
Calorific power.....	1,343	1,202

The above analysis occurs quite commonly in the above mentioned blowers, which always use great excess of steam.

The question now arises as to improvement on the old types of blowers, and before we discuss this we will submit the following tests:

1. A series of tests made by W. W. Coleman of the Bethlehem Steel Company, in reference to the

Efficiency of Steam Jet Blowers.

A pipe 18 feet long by about 14 inches in diameter was attached to a cubical box measuring about 3 feet each way. On the top of the box each blower was placed in turn—a steam attachment being convenient. On one side of the box was placed the water gauge; the counterpressure was obtained by means of a sliding door in the end of the pipe (in the tables "low counterpressure" means that this door was open 4½ inches, and "high counterpressure" means that this door was open 1¾ inches). The pressure is expressed in inches and fractions of an inch, as read from the water gauge. On top of each blower was bolted a wooden box, 1 foot square, with the full opening (1 square foot) at the top and the bottom opened to conform with the opening in the blower. By the aid of an anemometer (registering velocity of ingoing air in feet), the volume of air drawn into the blower in a given time was obtained. The relative amount of steam consumed by each blower is shown by the angle of the opening of the valve, which is expressed in degrees, measured with an angle protractor (the degrees do not accurately represent the angle of the opening, but are comparable). The steam pressure was kept as constant as possible during each series of tests.

Tables.

The following tables give each series of tests in detail:

Table A contains the results of the tests made with the steam pressure as high as obtainable, with only a small opening in the end of the pipe (high counterpressure). Steam pressure 115 pounds.

Table B contains the results of the test made with the steam pressure at 60 pounds and a high counterpressure.

Table C contains the results of the tests made with steam pressure at 50 pounds and a high counterpressure.

Table D contains the results of the tests made with the steam pressure at 30 and 40 pounds and a low counterpressure.

Table A.—Steam Pressure, B. S. Co. Blower, 115 lbs. (av.), Eynon-Evans Blower, 119 lbs. (av.).

Pressure.		Valve open.		Cu. ft. per min. Steam pressure.				Opening in pipe.		Comparison of results.
E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	
0.2	0.2	20°	30°	86	None	118	110	1 1/4 in.	1 1/4 in.	No. air blown in by B. S. Co. blower.
0.6	0.6	30°	40°	370	176	118	113	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains same pressure with 25 per cent. less steam and blows 110 per cent. more air.
1.7	1.7	40°	100°	640	440	120	116	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains more pressure with 60 per cent. less steam and blows 45.4 per cent. more air.
3.0	3.0	50°	120°	880	640	120	118	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains same pressure with 58.3 per cent. less steam, and blows 37.5 per cent. more air.
3.4	3.4	55°	140°	894	695	120	116	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains same pressure with 60.7 per cent. less steam, and blows 28.6 per cent. more air.
4.0	4.0	60°	175°	907	798	120	116	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains same pressure with 65.7 per cent. less steam, and blows 13.6 per cent. more air.

NOTE.—The difference in steam pressure (average 4 pounds) would not affect the results materially. "E.-E." indicates Eynon-Evans blower; "B. S." indicates Bethlehem Steel Company's blower.

Table B.—Steam Pressure 60 Pounds (Both Blowers).

Pressure.		Valve open.		Cu. ft. per min. Steam pressure.				Opening in pipe.		Comparison of results.
E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	
0.2	0.2	20°	90°	194	165	60	60	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 77.8 per cent. less steam, and blows 17.6 per cent. more air.
0.6	0.6	50°	120°	680	435	60	60	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 58.3 per cent. less steam, and blows 56.5 per cent. more air.
1.7	1.7	105°	210°	870	761	60	60	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 50 per cent. less steam, and blows 14.3 per cent. more air.
3.0	3.0	170°	450°	997	938	60	60	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 62.2 per cent. less steam, and blows 6.3 per cent. more air.
3.4	3.2	200°	Full.	1,048	982	60	60	1 1/4 in.	1 1/4 in.	With 57.4 per cent. less steam the Eynon-Evans blower obtains 6.2 per cent. more pressure and blows 6.7 per cent. more air.
4.0	..	255°	....	1,100	...	60	60	1 1/4 in.	1 1/4 in.	With 45.7 per cent. less steam the Eynon-Evans blower obtains 25 per cent. more pressure and blows 12 per cent. more air.

"E.-E." indicates Eynon-Evans blower; "B. S." indicates Bethlehem Steel Company's blower.

Table C.—Steam Pressure 50 Pounds (Both Blowers).

Pressure.		Valve open.		Cu. ft. per min. Steam pressure.				Opening in pipe.		Comparison of results.
E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	
0.2	0.2	25°	90°	142	135	50	50	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 22 per cent. less steam, and blows 5.2 per cent. more air.
0.6	0.6	55°	130°	375	306	50	50	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 57.7 per cent. less steam, and blows 22.6 per cent. more air.
1.7	1.7	115°	300°	700	670	50	50	1 1/4 in.	1 1/4 in.	Eynon-Evans blower obtains the same pressure with 61.7 per cent. less steam, and blows 4.5 per cent. more air.
2.0	2.4	270°	Full. (470°)	880	800	50	50	1 1/4 in.	1 1/4 in.	With 42.5 per cent. less steam the Eynon-Evans blower obtains 25 per cent. more pressure and blows 10 per cent. more air.
3.4	..	Full. (470°)	....	924	...	50	50	1 1/4 in.	1 1/4 in.	With the same steam the Eynon-Evans blower obtains 41.6 per cent. more pressure and blows 15.5 per cent. more air.

"E.-E." indicates Eynon-Evans blower; "B. S." indicates Bethlehem Steel Company's blower.

Table D.—Steam Pressure 30 Pounds and 40 Pounds (Both Blowers).

Pressure.		Valve open.		Cu. ft. per min. Steam pressure.				Opening in pipe.		Comparison of results.
E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	E.-E.	B. S. Co.	
0.7	0.2	Full.	Full.	957	705	30	30	4 1/2 in.	4 1/2 in.	With the same steam the Eynon-Evans blower obtains 250 per cent. more pressure, and blows 35.8 per cent. more air.
1.25	0.7	Full.	Full.	1,160	908	40	40	4 1/2 in.	4 1/2 in.	With the same steam the Eynon-Evans blower obtains 78.6 per cent. more pressure, and blows 27.7 per cent. more air.

"E.-E." indicates Eynon-Evans blower; "B. S." indicates Bethlehem Steel Company's blower.

Summary.

Table A.—Steam pressure 115 to 119 pounds. High counterpressure. E.-E. blower obtained the same pressure within the range of 2 to 4.0 inch, with a consumption of 58.3 per cent. less steam, and blew 7 per cent. more air than the B. S. Co.'s blower.

Table B.—Steam pressure 60 pounds. High counterpressure. The E.-E. blower obtained the same pressure within a range of 2 to 3.0 inch, with 60.3 per cent.

less steam, and blew 19 per cent. more air than the B. S. Co.'s blower.

The E.-E. blower, with 37.4 per cent. less steam obtained 6.2 per cent. more pressure (3.4 to 3.2 inch), and blew 6.7 per cent. more air than the B. S. Co.'s blower.

The E.-E. blower, with 45.7 per cent. less steam obtained 25 per cent. more pressure (4.0 to 3.2 inch), and blew 12 per cent. more air than the B. S. Co.'s blower.

Table C.—Steam pressure 50 pounds. High counterpressure. The E.-E. blower obtained the same pressure within a range of 2 to 1.7 inch, with a consumption of 42.50 per cent. less steam, and blew 9 per cent. more air than the B. S. Co.'s blower.

The E.-E. blower, with 42.5 per cent. less steam obtained 25 per cent. more pressure (3.0 to 2.4 inch), and blew 10 per cent. more air than the B. S. Co.'s blower.

With the same consumption of steam the E.-E. blower obtained 42 per cent. more pressure (3.4 to 2.4 inch), and blew 16 per cent. more air than the B. S. Co.'s blower.

Table D.—Steam pressure 40 pounds. Low counterpressure. With the same consumption of steam the E.-E. blower obtained 78.6 per cent. more pressure (1.25 to 0.7 inch), and blew 27.7 per cent. more air than the B. S. Co.'s blower.

Steam pressure 30 pounds. Low counterpressure. With the same consumption of steam the E.-E. blower obtained 250 per cent. more pressure (0.7 to 0.2 inch), and blew 35.8 per cent. more air than the B. S. Co.'s blower.

With steam pressures from 50 to 119 pounds, high and low counterpressures, the E.-E. blower obtained the same pressure in a range of 0.2 to 3.0 inch, with a consumption of 55.8 per cent. less steam, and blew 16.5 per cent. more air than the B. S. Co.'s blower.

With the same counterpressure, when obtaining a pressure of 0.2 to 3.4 inch, the E.-E. blower consumed 64.2 per cent. less steam with 118 pounds steam pressure than it does with 60 pounds, and 79.2 per cent. less steam than it does with 50 pounds steam pressure, and with 60 pounds steam pressure it consumed 41.7 per cent. less steam than with 50 pounds pressure.

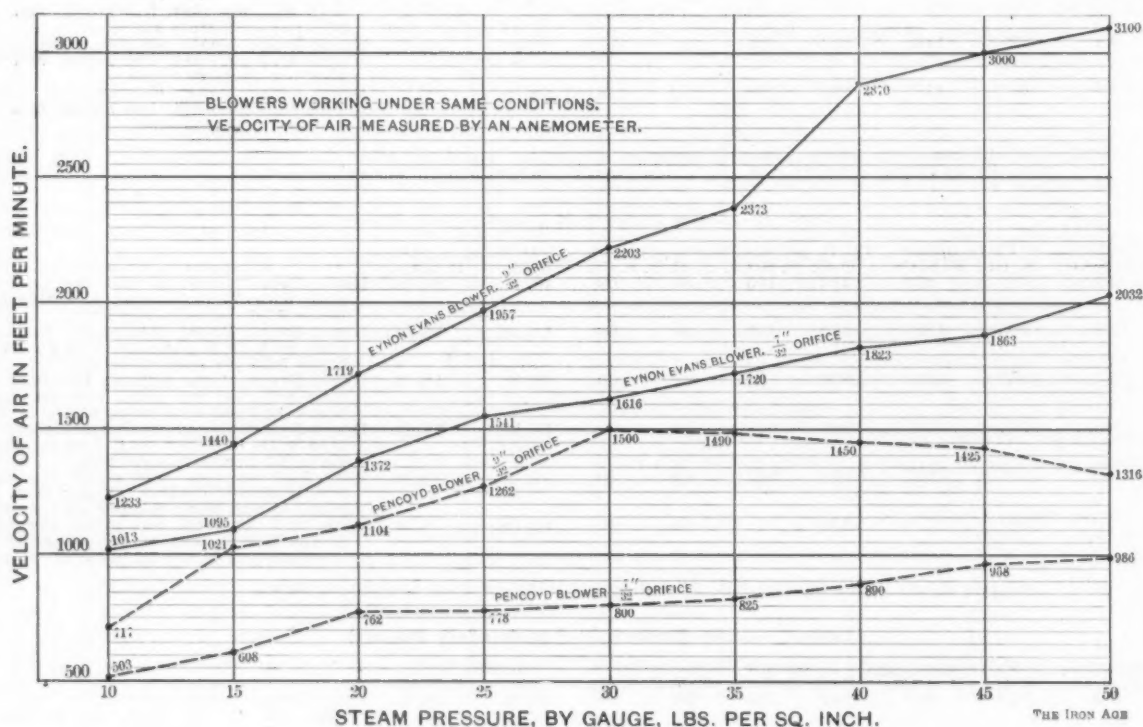
Analyses of Gases.

In connection with the very accurate test as above, the Bethlehem Steel Company still further carried on their work and made analyses of the gases as they entered the open hearth furnaces, to show the difference between the gases formed by the Eynon-Evans blower

pressure being much lower at the time of taking observations with the Eynon-Evans blower. The analyses of gas show that the gas from the fires with the Eynon-Evans blowers is a much superior gas to any obtained up to the present time.

Table 2.

	Gas samples taken.	
	2 hours 10 minutes before tapping.	1 hour 26 minutes before tapping.
Date	February 9.	February 8.
Heat number.....	31,922	22,743
Kind of blower.....	B. S. Co.	Eynon-Evans.
Steam pressure.....	51 pounds.	60 pounds.
Pressure under grate...	0.55 pound.	4.45 pound.
Valve open.....	218°	45°
Cubic feet per minute...	960	578
Condition of fires.....	Hot.	Medium hot.
Condition of flame.....	Hot.	Medium hot.
		Lid open about 3 inches.
Analyses of gas.		
CO ₂	4.82	3.60
O	0.20	0.40
CO	25.00	27.30
CH ₄	3.37	3.58
H	10.80	10.35
N	55.83	54.77
Totals.....	100.00	100.00



TEST OF EYNON-EVANS AND PENCOYD BLOWERS.

and the old blower they were using on their producers, as per the following tables:

Table 1.

	Gas samples taken.	
	55 min. after heat was melted.	1 hr. 10 min. after heat was melted.
Date	February 7.	February 6.
Heat number.....	31,919	22,740
Kind of blower.....	B. S. Co.	Eynon-Evans.
Steam pressure.....	73 pounds.	60 pounds.
Pressure under grate...	0.75 pound.	0.35 pound.
Valve open.....	470° (Full).	40°
Cubic feet per minute...	855	412
Condition of fires.....	2 hot, "barring" 1.	2 hot, 1 med. hot.
Condition of flame.....	Hot.	Medium hot.
		Lid open about 2.5 inches.
Analyses of Gas.		
CO ₂	4.80	3.20
O	None.	None.
CO	25.00	27.60
CH ₄	1.60	3.19
H	9.30	12.89
N	59.24	53.12
Totals.....	100.00	100.00

The Eynon-Evans blower was consuming 91.5 per cent. less steam and blowing 51.8 per cent. less air, while the pressure was 53.2 per cent. less, the steam

The Eynon-Evans blower was consuming 79.3 per cent. less steam and blowing 39.8 per cent. less air, and obtaining only 18 per cent. less pressure under the grate. There was evidently not enough steam on the fires with the B. S. Company's blowers. The quality of gas from the fires with the Eynon-Evans blowers is very much better than that from the fires with the B. S. Company's blowers.

Table 3.—Analyses of Gas from No. 1 and No. 4 O. H. Furnaces.

Heat No.....	13,604	41,366
Date	February 11.	February 10.
Kind of blower.....	Eynon-Evans.	B. S. Co.
Analyses of gas.		
CO ₂	3.20	7.20
O	None.	0.20
CO	27.40	24.80
CH ₄	4.56	1.18
H	11.90	7.25
N	52.94	59.37
Totals.....	100.00	100.00

The quality of gas from fires with Eynon-Evans blowers is very much superior to that from fires for No. 4 Furnace, which are equipped with B. S. Company's blowers.

About the same amount of coke and clinkers was produced at the fires with both kinds of blowers.

It will be noticed from the above tables that the saving of steam is enormous, also that a very much better quality of gas has been produced by the Eynon-Evans blowers over the blowers at that time in use. Also that with a smaller consumption of steam a very much larger body of air is blown in and considerably more counterpressure is obtained under the grate, even with a lower steam pressure.

Other Tests.

Another series of tests was made with the improved Eynon-Evans blower by the Pencoyd Iron Company as per the accompanying diagram, which shows very accurately the capacity and efficiency of the two blowers, the full line indicating the improved blower and the dotted line the blower then used by the Pencoyd Company. It might be of interest to point out here that the old

case, as in many others, the steam nozzle was reduced to less than 1/8 inch in diameter, and the blower was so arranged that the quantity of steam going to the blowers could not be tampered with by producer men. This method insures a uniformity of steam pressure, and necessarily a uniformity of the amount of air forced into the producer, making the gas from the producers uniform in quantity and quality.

The following tables show tests of the Wellman and Parsons Blowlers with the Eynon-Evans blower by the Midvale Steel Company, and are also of interest. In this experiment, as in all other test experiments, the comparison of the quantity of steam used by different blowers was obtained by having a large tank with known quantity of water, placed on a scale and the jets of the different blowers successively placed in the wa-

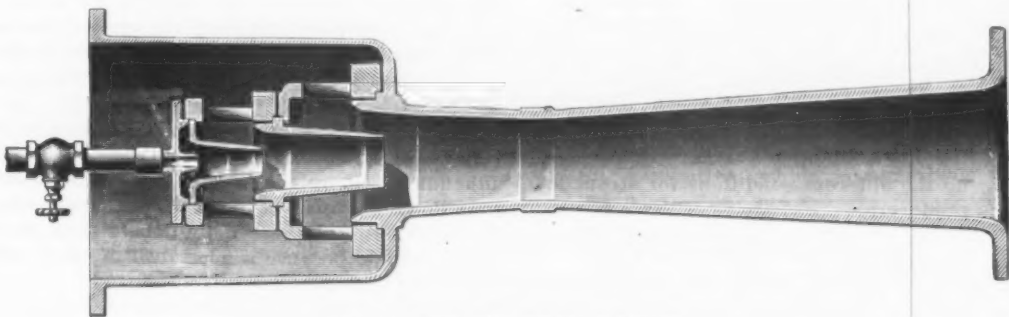


Fig. 1.—Small Gas Producer Blower.

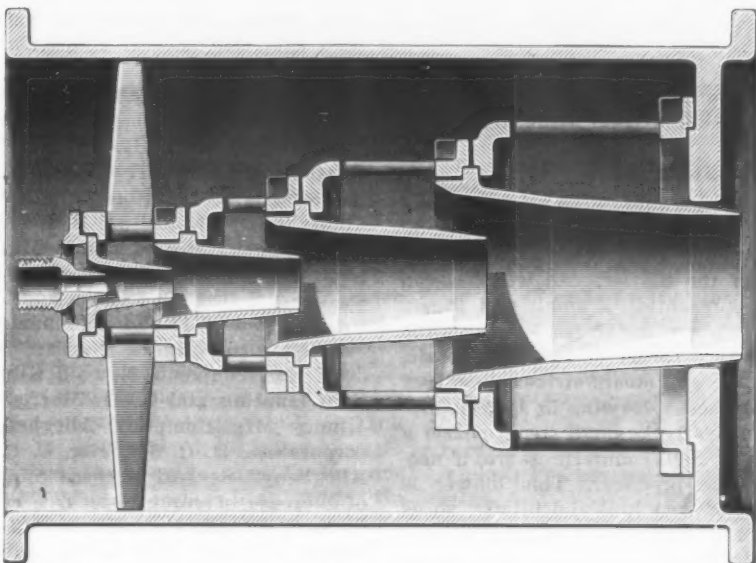


Fig. 2.—Large Gas Producer Blower.

IMPROVED BLOWERS FOR GAS PRODUCERS.

blower reached its maximum capacity at 30 pounds pressure in one case, and at 50 pounds pressure in another case; after which point the capacity of the blower (on account of great quantity of steam used) gradually grew less, while with the new blower the capacity was steadily increased through all the experiments with higher steam pressure.

At the Phoenix Iron Company a series of tests were made with their old blowers and the Eynon-Evans blowers in the shape of analyses of the gases for 30 days, producers using the new blowers showing an increase of CO over the producers where the old blower was used of about 12 per cent.

A very interesting test was also made by the Pennsylvania Steel Company, at Steelton, showing not only a large amount of steam saved but also improvement in the quality of gas. Here the experiments took a new turn. Instead of using from 60 to 80 pounds steam pressure, as is commonly used in producer practice, a special boiler was erected carrying 125 pounds steam, to carry supply direct to blowers on gas producers. In this

ter and steam opened to each jet for a definite time and the water afterward weighed. This gave the exact amount of steam used in each blower, which will be more plainly seen by the following tables:

Tests of No. 4 Eynon-Evans Blower and No. 4 Wellman Blower.
Diameter of Orifice for Both Blowlers, 10 Inches.
Test Made January 10, 1901.

Steam pressure in pounds per square inch.	Counter-pressure. Inches of water.	Capacity in cubic feet per minute.	Eynon-Evans.	Wellman.
10.....	0.5	836	.....	.....
10.....	1.0	186	.....	.....
25.....	0.5	1,182	.....	276
25.....	1.0	959	.....	70
50.....	0.5	2,034	.....	603
50.....	1.0	1,820	.....	562
60.....	2.5	1,480	.....	209
75.....	0.5	2,190	.....	850
75.....	1.0	2,135	.....	755
100.....	1.0	2,585	.....	863
100.....	1.5	2,385	.....	753
120.....	1.0	2,928	.....	990
120.....	1.5	2,692	.....	862

Tests of No. 5 Eynon-Evans Blower (10 mm. Orifice) and No. 5 Parsons Blower (Standard).

Test Made Jan. 10, 1901.

Steam pressure in pounds per square inch.	Counter-pressure. Inches of water.	Capacity in cubic feet per minute.	Parsons.	Eynon-Evans.
30.....	$\frac{1}{2}$	1,249	1,249	2,570
50.....	$\frac{1}{2}$	3,330	3,330	4,440
70.....	$\frac{1}{2}$	2,742	2,742	3,906
90.....	$\frac{1}{2}$	4,466	4,466	5,380
105.....	$\frac{1}{2}$	4,422	4,422	5,168
	0.6	5,280	5,280	5,948
	1.0	4,708	4,708	6,416
	0.6	5,306	5,306	*5,740
	1.0	4,804	4,804	6,120

* Anemometer broke down.

The Following Test was Made to Find the Number of Pounds of Steam Used Per Minute.—Blowers Same as in Preceding Tables.

Steam pressure.	Temperature of water—degrees F.—				Pounds of steam used per minute.	
Lbs. per sq. in.	Eynon-Evans.		Parsons.		Eynon-Evans.	Parsons.
	At start.	At finish.	At start.	At finish.		
30.....	70	93	70	124	8.6	17
70.....	93	138	93	185	9	22.9
90.....	72	122	72	140	10.8	30.9

Conclusions.

In summing up the different conditions for steam jet blowers on gas producers:

1. It is of advantage in all cases to keep steam pressure absolutely uniform.
2. That the amount of air entering the blower after right working condition is obtained should always remain constant.
3. In using a powerful blower, as shown by the above tables, the bed of fuel can be carried from 3 to 6 feet in height.

The question of blowers is indeed an interesting one, and in the above tables we have simply given a few of the very many experiments and tests made during the past five years.

Eynon-Evans Blower.

The gas producer blower manufactured by the Eynon-Evans Mfg. Company contains a series of nozzles in which the air is compounded from three to ten times, depending on the size of the blower. As will be seen from the cuts, Fig. 1 representing a small and Fig. 2 a section of a large size blower, the steam jet enters the small nozzle and strikes the throat of the next nozzle, then the combination of air and steam strikes the throat of the next nozzle, in each case drawing in a fresh supply of air, so that with a relatively small steam nozzle a large quantity of air under high counterpressure, if necessary, is carried into the producer. This blower is made excessively heavy, of cast iron and bronze, so as to withstand the hard wear and tear necessary in connection with a gas producer plant.

The United Engineering & Foundry Company.—The United Engineering & Foundry Company of Pittsburgh have received a contract for a large amount of work for the Algoma Tube Company, who are building a large new plant at Sault Ste. Marie, Mich. The McGill & Co. department of the United Engineering & Foundry Company are building the machinery equipment, consisting of the draw benches, cross rolls, straightening, conveying and other machinery, for the Perrins Pipe Mill for the Lake Superior Power Company, which they received through S. V. Huber & Co., consulting engineers, of Pittsburgh, as well as the complete machinery equipment for the Youngstown Iron Sheet & Tube Company's plant, consisting of one lap weld and two butt weld mills. They are also furnishing the complete machinery for the 20-inch lap weld pipe mill for Spang, Chalfant & Co., which was placed through office of Julian Kennedy, contracting engineer, of this city. The McGill & Co. department have also designed and built the complete tube plant for the La Belle Iron Works of Steubenville, Ohio, consisting of one 12-inch lap weld mill, one 6-inch lap weld mill and one butt weld mill. Part of this plant has been put in operation and the remainder will be started up in a very short time. McGill & Co. also have orders for coupling making

equipment from Lloyd & Lloyd of Birmingham, England, and Howell & Co., of Sheffield, England, as well as various machines of their special design for the Cohoes Rolling Mill Company, Montreal Rolling Mill Company and the Eastern Tube Company. The United Engineering & Foundry Company design and build at their McGill & Co. plant any machine needed in the manufacture of butt weld and lap weld pipe from the largest size down.

Notes from Central Pennsylvania.

HARRISBURG, PA., March 4, 1902.—All of the mills and furnaces along the banks of the Susquehanna and its tributaries have been shut down for several days by reason of the floods, and the property loss will be large. In many cases valuable property has been swept away and improvements have been greatly retarded. The storm of a week ago made more acute the unpleasant situation caused by the shortage of coke and steel, and the middle of the week saw the waters rising so that operations had to be curtailed. There have been ten furnaces banked within 20 miles of this city and almost every mill is idle. In the Lebanon and Schuylkill valleys the situation is almost similar, furnaces hitherto unhandicapped by the lack of coke being compelled to shut down because of flood. The high water and its consequences will cause more delays than the coke and coal shortage, because a good deal of time will be consumed for repairs.

The situation throughout central Pennsylvania augurs a great deal of business for the spring. According to all reports there have been many orders placed and they will be run out as fast as circumstances permit. It is said that several additional furnaces will be put into blast this month.

The State has granted charters to these new iron firms: Baird Machinery Company, Pittsburgh; capital, \$1000; incorporators, H. A. Reed, C. A. and W. B. Wolfe, Pittsburgh. Arco Mfg. Company of Philadelphia; capital, \$3000; incorporators, J. V. Washburn, Waterbury, Conn.; T. D. Richardson, B. Bedell and F. E. De Long, Philadelphia. Robert Tunis Mfg. Company, Philadelphia; capital, \$9000; incorporators, Robert W. Tunis and O. A. Scarlett, Philadelphia, and W. E. Tunis, Wilmington. Keystone Foundry Company, Pottstown; capital, \$25,000; incorporators, Nathan Hoffman, John Davis, John H. Henderson, Newton Kline, A. K. Shaner, William Hunting and A. H. Morris, Pottstown. The McKinney Mfg. Company, Allegheny; capital, \$5000; incorporators, H. C. Spangler, C. P. Orr and W. C. Farr, Allegheny. Several of these companies will file notices of increase of capital stock.

No. 2 Paxton Furnace, in this city, will be blown in within a month after having been repaired. It is one of the largest in this city.

The Lebanon Iron & Steel Company have been formed at Lebanon and will ask the State for a charter for the manufacture of wrought iron and steel. The plant will be built this spring near the site of the Lebanon Rolling Mills. Those interested are Paul H. Dennison, Harry M. Kurtz, William E. Stokes, William H. Triol and J. Walter White of Philadelphia.

Announcement has been made that Worth Brothers will build another steel mill at Coatesville. The capacity of the works at that place has been more than doubled lately.

The material for the new puddle mill of the Duncannon Iron Company at Duncannon has arrived and the erection of the mill will be commenced soon. The new mill will eventually take the place of the present mill and will be located near the site of the dismantled Duncannon Furnace.

The Central Iron & Steel Company of this city are rolling plates from German steel. Several other firms have recently received shipments of English and German steel.

The Westmoreland Steel Company of Pittsburgh have filed a notice at the State Capitol that they have increased their capital from \$1000 to \$100,000, and the Westinghouse Machine Company of Pittsburgh, to \$5,000,000 from \$3,000,000.

Lake Ore Matters.

Siliceous Ores.

DULUTH, MINN., March 1, 1902.—A recent purchase of a large tract of lands on the Cascade Range, south of Marquette, by the United States Steel Corporation, has excited no little comment. These lands contain a very large tonnage of ores of the highly siliceous class, running about 40 per cent. iron, nearly as much in silica, and some with a very low percentage of phosphorus, putting them into a class of lean Bessemer. Included in the deal are the Richmond and Starwest mines, both of which are under lease to operators, the former to A. Maitland of Negaunee, who has a lease running 16 years. On several of the properties included in this deal are lenses of ore running much higher than 40 per cent., but the attempt to mine and sort these higher grade ores has been disastrous, and will probably not be repeated. It is possible to mine these ores only by taking advantage of the immense tonnages they contain, and in this way mining all there is to be taken out cheaply. The purchase of these ores has been for their siliceous qualities, which mix well with the low silicon ores of the Mesaba, of which such immense proportions are even now to be used, as indicated in my letter of last week. Then, too, these ores will in time be valuable as chief ingredients in the furnaces when the richer ores of other ranges are more nearly exhausted. The time is coming in the lake district, unless very large new finds are made, when a 40 per cent. ore will not look so low as it does to-day, and when ores that are now used for ballasting roads will be put into the furnace. That new finds of great importance may be made is quite possible, but it is now generally considered that ores now regarded with disapproval, such as magnetites and some titaniferous ores, will be among them. Indeed, it is not too much to say that vast deposits of such ores may be located at points so near Lake Superior as to afford the benefit of cheap water transportation to furnaces.

Of these siliceous ores such as have just been bought, there are perhaps hundreds of millions of tons in the Marquette range and to the south of it. The United States Steel Corporation have large quantities at the Winthrop and elsewhere, in addition to what has been bought recently. The Pittsburgh & Lake Angeline Company have a great deal of this ore near the Winthrop and at Ishpeming, and will probably mine a considerable tonnage this year to assist their Mesaba ores. The Jackson Iron Company have such ores at their South Jackson mine, and they are to be found at various places in Negaunee and throughout the county. The Chester runs 36 per cent. silica and 0.028 per cent. phosphorus. On the Menominee range there are siliceous ores in quantity, and the Antoine Ore Company are mining them to some extent, as are the Pewabic and Quinnesec mines. Most of these ores are cheaply mined, which is a distinct advantage and assistance.

On the Mesaba a mine is being opened by Corrigan, McKinney & Co., to be called the "Jordan." It is one mile east of Longyear Lake, in Section 22, T. 58 R. 20, and a shaft is already down about 25 feet, on an incline of 60 per cent. Machinery is now being hauled overland to the location. The mine will ship over the Eastern Railway of Minnesota and a little this year. A contract for stripping has been let, and the mine will be made a milling proposition. At the new Lincoln, being opened by the Interstate Mining Company (Jones & Laughlins), they have two shafts now in ore, one of them 50 feet in the ore under an overlying surface of about 70 feet. At the second shaft there is a surface of but 30 feet. A number of commodious and comfortable buildings has been erected at the location, which is close to the Commodore mine, near the village of Virginia. An exploration is now under way on the west side of the Mississippi River, on the strike of the Mesaba ore bearing rocks, where it is claimed there are favorable indications for iron. If any mine can be located there the territorial area of the range will be considerably increased.

On the Gogebic Range.

On the Gogebic range there is intense activity; no other phrase will describe the situation so nearly. There

is an immense amount of ore coming to surface daily, and the number of men employed now is larger than in the history of the district. The Wakefield section is coming to the front, and some of the fine ore of the range is coming from that vicinity. At the Colby a shaft is being sunk about 500 feet, and is now down more than 250 feet of the distance. It is expected that ore will be hoisted here early in the summer. The Jackpot shaft is through, and is now being enlarged to permanent size. The new Norrie shafts are being pushed rapidly, and at all developments the utmost activity prevails. The railroads are improving their facilities and making ready for an enlarged output.

Increased Loads of Ore Trains.

The Duluth & Iron Range road, which reaches the eastern Mesaba and the entire Vermillion range, is preparing to increase the size of load in its trains, in accordance with experiments carried out late last year, and will build a number of coal docks, water towers and sidings for pusher engines. It was found last season that by the use of pusher engines on a few grades against traffic it was possible to move trains of 50 loaded 50-ton steel cars, or 2500 gross tons, of paying load. This will mean more than 4000 gross tons of a total load on the locomotive, which is something that is not often heard of. That the average for the coming year, even with the type of heaviest locomotive, will be 2500 tons is hardly to be expected, but the intention is to approach that figure as closely as may be. Last year the average was about 1750 to 1800 gross tons, and it is but a few years since 19 of the 27-ton wood cars constituted a good load. These cars weighed more, per ton of ore carried, than do the steel cars of the present day.

On the Menominee range the North Hope, which has been under development for some time, is looking well. It lies close to the Hope and near Crystal Falls. Drill work is showing ore running up to 60 per cent. At other new properties on this range there is considerable encouragement, though development there, as well as elsewhere, is distressingly slow. Pickands, Mather & Co., who have been doing a large amount of work under the title of Verona Iron Company, have been considerably bothered by water at some of their developments.

The Lake Superior Mining Institute.

Secretary A. J. Yungbluth of the Lake Superior Mining Institute has issued a circular as to the annual meeting for 1902, which will be held at Duluth and the Minnesota ranges, commencing August 19 next. This date has been selected by the council, in order that the members may witness the open pit mines of the Mesaba while in full swing. At the time of the last meeting in Minnesota, March, 1895, the pit mines were idle, and much of the most interesting portion of the work was closed. It is expected that a number of papers will be presented, and in order for a full discussion it is intended that they shall be printed and distributed some time before the meeting. General Superintendent W. J. Olcott of the United States Steel Corporation's mines in the Mesaba district is president of the institute.

The deadlock between the big steel company and vessemen is still on, with both sides rather confident of victory. The Steel Corporation figures that there will be so many more ships this year than last, with a smaller tonnage of grain than then, that it is unnecessary to pay more than 75 cents a ton from the head of Lake Superior to Lake Erie ports. The premises on which their conclusion is based are undoubtedly correct. There will be not only many more ships, but the season bids fair to be two weeks earlier than last year, which is equivalent to a further increase in capacity amounting to 7 per cent. There is no line of commodities, except ore, in which much of an increase of tonnage can be expected and the amount of corn to go forward will be exceptionally small. Then, too, better unloading facilities are promised at some lower lake ports, and this will be equivalent to another increase of tonnage.

D. E. W.

J. P. Morgan & Co. deny that the United States Steel Corporation are seeking to control the Pittsburgh Coal Company and the Monongahela River Consolidated Coal & Coke Company of Pittsburgh.

The Thomson Method of Making Tubes Electrically.

In a patent recently issued to Prof. Elihu Thomson we find described a novel method of manufacturing metal tubes. The edges to be joined are brought in contact or nearly in contact, a strip of metal or wire then being placed in the joint. By means of suitable contact pieces an electric current is then passed transversely or laterally through the strip laid in the joint and also through the edges. Pressure is applied to complete the joint.

In forming a pipe according to this method the sheet metal is rolled to the form of a hollow cylinder, with the edges meeting to produce a seam. Into this seam is fed a wire or strip under or between current conveying pressure rolls, by means of which the several parts of the pipe are closely contacted.

In general the process is shown in Fig. 1. The current of electricity is derived from the transformer P.

be made, as shown in the figure, to the cylinder itself. The two pieces of sheet metal, whose edges may be slightly upturned, are held together in any suitable way, either manually or by suitable clamps, so that their edges where they are approximated may be passed under the block B or between it and the terminal block A. A strip of wire, F, is extended so as to lie over the groove between the sheets and be forced into the slot by the pressure of the piece B, while the pieces are traversed in the direction indicated by the arrows under the block B. At the same time a heavy current is caused to pass between B and A, so as to heat the strip and the metal pieces at the joint. This is effected all the more surely because of the strip F and the upturned edges of the plates causing a sort of elevation or ridge to which the flow of current is naturally limited, as being the only place of actual contact. The forward corner or edge of the face of the block B is preferably beveled in such a way that as the pieces are traversed in the direction of the arrow a sort of flattening down

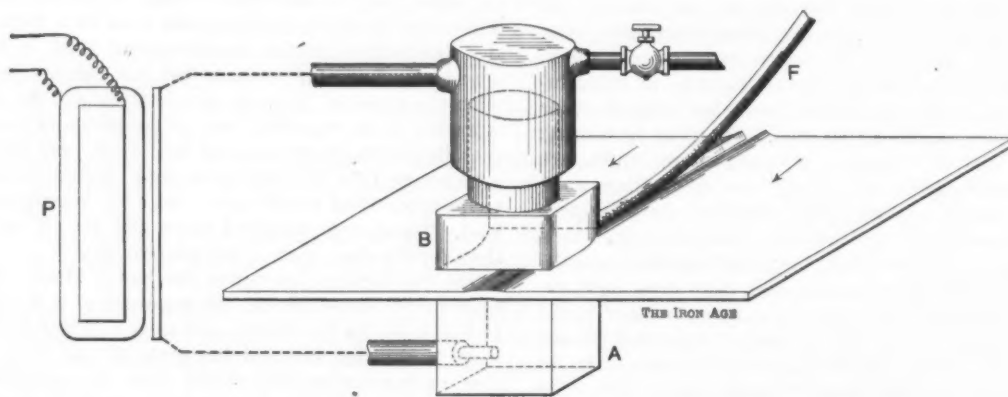


Fig. 1.—Joining Edges of Sheet Metal.

The secondary conductor has its terminals, one at A, consisting of a heavy conductor of good conducting metal, and another at B, or a similar heavy block of conducting metal pressed toward A during the operation. The work is inserted between these two terminals and the pressure of one toward the other may be effected by springs, air or water pressure, or other suitable power. In the figure is indicated the piston of a hydraulic press attached to B and serving to force the same downward by a regulated pressure, as determined by the head of the water passing through the pipe under

process is carried out whereby the wire F is, as it were, depressed gradually into the joint as it heats, thus effectually uniting the parts. The pressures and currents are adjusted to that amount which allows the work to be just completed as the joint itself progresses from under the block B. The operation, in fact, consists in making the strip F highly plastic while bringing the edge of the sheets to a plastic condition, whereby a complete union of the parts is effected, together with the compression of the progressively formed joint when the pieces are moved under the block B.

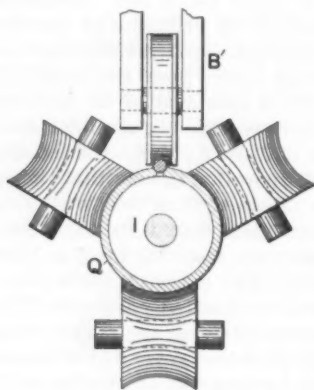


Fig. 2.

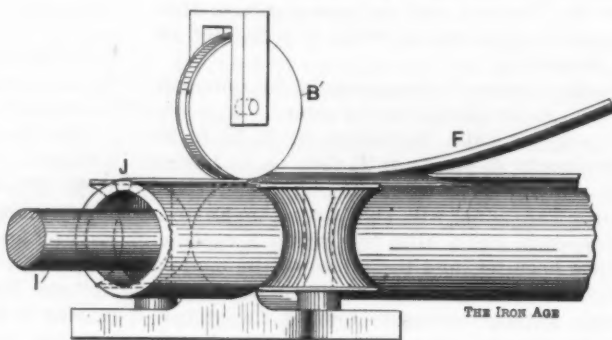


Fig. 3.

Making a Metal Tube.

THE THOMSON METHOD OF MAKING TUBES ELECTRICALLY.

suitable control. The terminal of the secondary not attached to A may be led directly to B by slightly flexible conductors, or if the contact of the piston head B with the sides of the cylinder is enough the connection may

Making tubes of mild steel or wrought iron is shown in Figs. 2 and 3. The strip of sheet metal which is to form the pipe is bent upward in the form of a hollow cylinder, with the edges meeting or almost meeting

along the side, and with these edges preferably slightly turned toward the direction of application of a longitudinal strip or wire which yields a plastic material for the joint when heated electrically. Thus in Figs. 2 and 3 an upper pressure contact roll, B', connected with a source of current and made of good conducting material, bears such a relation to the work that as it passes beneath the same current is delivered in such a way as to heat the strip F fed into the joint and soften the same, uniting it with the upturned edges of the sheet metal and finishing the joint, as at J. The other contacts for current—that is, for completing the circuit and which takes the place of the part A, Fig. 1—are contact rolls. In fact, all the rolls in this instance may be replaced by sliding shoes or surfaces borne against the sides of the pipe, so as to effect proper contact. If the rolls be connected with one terminal of a source of current and B' with the other, then the course of the current is through the strip F laterally and through the meeting edges of the cylinder or pipe, producing a high temperature at this point, causing yielding of the metal and welding the same, while if the pipe be pushed grad-

Production of Pig Iron in Canada in 1901.

The production of pig iron in the Dominion of Canada, as ascertained from the manufacturers by the American Iron and Steel Association, amounted in the calendar year 1901 to 244,976 gross tons, as compared with 86,090 tons in 1900, 94,077 tons in 1899, 68,755 tons in 1898, 53,796 tons in 1897, 60,030 tons in 1896, 37,829 tons in 1895 and 44,791 tons in 1894. The statistics of the association do not go back prior to 1894. Of the production last year 228,893 tons were made with coke and 16,083 tons with charcoal. The production of Bessemer pig iron, included above, amounted to 29,577 tons. Neither spiegel nor ferromanganese was made.

On December 31, 1901, the unsold stocks of pig iron in Canada amounted to 59,472 gross tons, as compared with 12,465 tons at the close of 1900 and 9932 tons at the close of 1899. Of the unsold iron on hand on December 31, 1901, 54,563 tons were coke pig iron and 4909 tons were charcoal pig iron.

On December 31, 1901, there were 14 completed furnaces in Canada and four furnaces were in course of

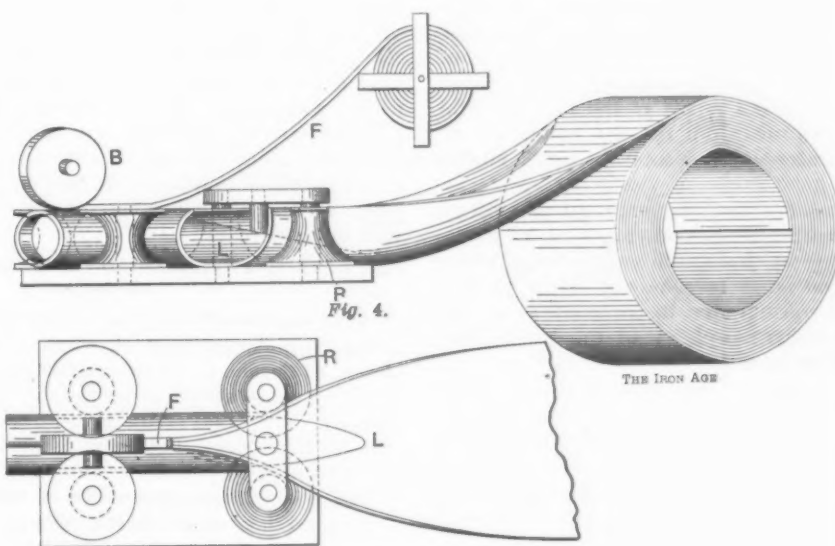


Fig. 5.

Making Continuous Lengths of Pipe.

THE THOMSON METHOD OF MAKING TUBES ELECTRICALLY.

ually by any suitable means past the point of application of current and heat the welding or union is progressively effected. It is desirable in some cases to insert a mandrel within the pipe Q—as indicated at I, for example—sustaining the interior and finishing the same when the heat is on. This mandrel may be supported in the ordinary way upon long rods, as in other operations of pipe making, and may be shaped to favor the passage of the material over it.

Figs. 4 and 5 are diagrams showing how the process may be employed to form a long or continuous pipe. The current carrying roll B' is placed as before for pressing down and supplying current for the formation of the joint by the strip F, fed from a suitable roll, while a table serves as the support for the bending and shaping rolls, which act laterally upon the strip as it is unwound from a large reel. The rollers R R guide and bend the sheet as it passes over the mandrel. The progress of the piece may be effected in any desired way, as by clamp rolls moved at a certain determined rate, depending upon the energy of the current used, or the pipe itself may be dragged mechanically between the rolls and bent at the same time by the operation of drawing through. The rate at which the movement is effected depends upon the rate of delivery of current energy from the roller B', moving along the strip and pipe.

construction. Of the completed furnaces seven were in blast and seven were idle on the date named. During 1901 four furnaces were erected by the Dominion Iron & Steel Company at Sydney, Cape Breton, Nova Scotia, three of which were blown in in 1901. The fourth furnace was put in blast in January, 1902. Of the 14 completed furnaces nine were equipped to use coke for fuel, four charcoal and one charcoal and coke.

The new Union station being built by the Pennsylvania Railroad, in Pittsburgh, is nearly finished, and the building will be occupied by the offices of the Pennsylvania Railroad and Pennsylvania lines west of Pittsburgh within a very short time. The station is a modern one, and has been occupied as a waiting room and ticket office for some months. The work of elevating the tracks in the Pittsburgh district, and over into Allegheny, is progressing satisfactorily, and in a short time a large amount of elevated work for carrying the tracks through to Allegheny will be let. It is probable this work will go to the American Bridge Company, and a large amount of structural material will be required.

About April 1 the offices of the Amalgamated Association will be removed from the Bissell Block to the new House Building, Water and Smithfield streets, Pittsburgh.

Scientific and Technical Notes.

The Binary Vapor Engine.

Interest in the binary vapor engine has recently been revived through the results obtained by Professor Josse of Berlin. A company organized to develop his waste heat engine completed one of 60 or 70 horse-power in 1900, and one of 175 horse-power has been in commission since May, 1901. The exhaust of a steam engine is utilized to vaporize sulphur dioxide, and the SO_2 vapor operates the waste heat engine.

Exhaust from the low pressure cylinder of the steam engine passes to the shell of a surface condenser, into the tubes of which liquid SO_2 is pumped. The transfer of heat from the exhaust steam to the SO_2 results in condensation of the former and vaporization of the latter.

Steam at an absolute pressure of 3 pounds per square inch (corresponding to a vacuum of nearly 24 inches) has a temperature of about 142 degrees F. Sulphur dioxide at this temperature has a vapor pressure of about 160 pounds per square inch, absolute. The SO_2 vapor is exhausted from the waste heat engine into a surface condenser, which is supplied with cooling water at natural temperature. The temperature of 60 degrees F. corresponds to a saturated vapor of SO_2 at about 41 pounds pressure. It thus appears that a considerable range of working pressure is available for the SO_2 engine, even though the SO_2 vapor is not raised to the full temperature of the condensed steam on the one hand, nor reduced to the temperature of the entering water on the other.

The 175 horse-power waste heat engine was built to run in conjunction with a compound engine of 360 horse-power, the water rate of this steam engine being about 18.35 pounds per indicated horse-power. It is evident that a lower steam consumption in the primary engine would reduce the relative capacity of the waste heat engine which could be operated by its exhaust loss.

The experimental plant at the Royal Technical High School, Berlin, consisted of a triple expansion steam engine connected up with a waste heat cylinder. The following average results are derived from seven trials of this plant, using highly superheated steam.

Indicated horse-power of triple expansion steam engine..	146.4
Steam consumption per indicated horse-power hour of steam engine, pounds.....	12.8
Indicated horse-power of waste heat engine.....	52.7
horse-power of waste heat engine in percentage of steam engine horse-power.....	35.9
Steam consumption per indicated horse-power hour of combined engine, pounds.....	9.43

Tests conducted with the steam engine run as a compound showed that the power developed by the waste heat engine equaled 39.5 per cent. of the power of the steam engine. During these trials the water rate was 13.5 pounds per indicated horse-power of the steam engine per hour, and the rate per indicated horse-power of the combined engine was 9.7 pounds. With dry saturated steam (triple expansion) the waste heat engine developed power equal to 42.1 per cent. of the power of the steam engine. The water rate per hour was, in this case, 16.4 pounds per indicated horse-power of the steam engine, or 11.5 pounds per indicated horse-power of the combined engines. The cooling surface of the condenser and the quantity of cooling water required with the waste heat engine must be quite large.

The Effect of Temperature on the Physical Qualities of Bronze.

An investigation of the effect of temperature upon the tensile strength and ductility of bronze, recently reported by Prof. C. Bach of Stuttgart, indicates an astonishing decrease in both of these important properties when the temperature exceeds about 400 degrees F.

The alloy for which we have the data was nominally composed of copper, 91 per cent.; zinc, 4 per cent.; tin, 5 per cent. Chemical analysis gave the composition as copper, 91.35 per cent.; zinc, 2.87 per cent.; tin, 5.45 per cent.; lead, 0.28 per cent.; iron, 0.025 per cent., and traces of phosphorus, arsenic, antimony and sulphur. The usual loss of zinc by oxidation in melting accounts for the smaller percentage of zinc and the greater percentages of copper and tin shown by the chemical analysis,

and the other elements represent the inevitable impurities. The test specimens were 2 cm. in diameter (0.786 inch) and 15 cm. long (5.9 inch). The following is a summary of the results of Professor Bach:

Temper- ature, Deg. F.	Tensile strength, Lb. sq. in.	Elonga- tion, Per cent.	Reduction area, Per cent.	Relative strength.	Relative elongation.	Relative Reduct. area.
68	34,000	36.3	52.1	1.00	1.00	1.00
212	34,120	35.4	47.4	1.01	0.98	0.91
392	31,936	34.7	48.2	0.94	0.96	0.93
572	19,426	11.5	16.2	0.57	0.32	0.31
752	8,875	0.0	0.0	0.26	0.00	0.00
932	6,262	0.0	0.0	0.18	0.00	0.00

The reduction of strength and ductility at 400 degrees F. is only about 6 per cent., but at 600 degrees F. the strength is only about one-half, and the elongation less than one-fourth the original (i. e., at 68 degrees F.). This indicates that the alloy tested may be considered as safe for use in connection with saturated steam at all ordinary pressures. However, this metal would probably not be reliable for valve bodies, tubes, stuffing boxes, &c., with highly superheated steam or in gas engines. Of course, other bronzes may deteriorate less with increase of temperature. Further experiment is necessary to determine this point. The above results are confirmed by the testimony of R. Lenke at the recent Glasgow International Engineering Congress. He stated that piston packing rings, &c., for highly superheated steam should not be made of gun metal as they soon become brittle and break. Another investigation by Professor Bach shows that cast iron, of a not unusual composition, loses only about 1 per cent. in strength at 572 degrees F.; it retains three-fourths of its normal strength at 932 degrees F., and about one-half of the original strength at 1058 degrees F.

The Cornell Equipment for Testing the Propulsion of Ships.

A very important equipment for experimental work relating to the propulsion of ships has been recently installed at Cornell University, after several years of planning and construction under the direction of Prof. W. F. Durand. The canal of the Hydraulic Laboratory is utilized for this work. This canal is about 340 feet long, 16 feet wide and 10 feet deep.

The principal features of the equipment are:

1. A carriage or truck spanning the canal and carrying the propellers to be tested and the apparatus required, and running on a track extending the length of the canal.
2. A transmission dynamometer for the measurement of the power absorbed by the propeller.
3. Means for driving the propeller through the dynamometer at speeds varying through a wide range, and for any run in constant proportion to the speed of the truck along the rails.
4. A thrust dynamometer for measuring the thrust developed.
5. Means for registering time, distance and revolutions.

This plant is fully provided with the necessary features for investigating the relations between diameter, pitch, area of blades and slip of the propeller, as well as the effects of such minor considerations as shape of the blades, distribution of thickness, &c. It is also adapted for many special lines of research.

The apparatus has been fully tested, and found equal to the demands both in range of operation and accuracy of observations. The systematic investigations will begin with the opening of navigation.

The Temperature of the Sun.

Prof. Charles Wilson has announced to the Royal Society a new determination of the temperature of the sun. This temperature is placed at 6200 degrees C. (11,192 degrees F.). It is stated that the absorption of the sun's atmosphere probably makes this temperature equivalent to 6600 degrees C. at the surface.

The St. Louis World's Fair.—The director of exhibits of the World's Fair, St. Louis, 1903, F. J. V. Skiff, has issued a pamphlet giving the official classification for the exhibit departments and a second pamphlet containing the rules and regulations.

The Iron Age

New York, Thursday, March 6, 1902.

DAVID WILLIAMS COMPANY,	-	-	-	-	-	PUBLISHERS.
CHARLES KIRCHHOFF,	-	-	-	-	-	EDITOR.
GEO. W. COPE,	-	-	-	-	-	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	-	-	-	-	-	HARDWARE EDITOR.
JOHN B. KING,	-	-	-	-	-	BUSINESS MANAGER.

The Case of the Northern Securities Company.

The Northern Securities Company are somewhat of an enigma, not only to the people at large, but likewise to those well versed in financial, industrial and railway matters. That President Roosevelt is determined that this sphinx, however, shall give up its secret is evinced by the instructions issued to Attorney-General Knox to test the legal status of the company under the anti-trust act.

It has been assumed, naturally, that the Securities Company holds a majority of the stock of the two railroads in interest—the Northern Pacific and the Great Northern—but it is now asserted that a majority of the stock of but one of these railroads is owned by the Securities Company. Upon this basis it is asserted that the contemplated action will end in a nonsuit. But should it be found that a majority of the stock of each railroad involved is held by the Securities Company the case will assume a different aspect. Still, in the opinion of those most conversant with the facts, the path of the Government is beset with many difficulties. It is useless, of course, to attempt to anticipate the findings of the court, but it is both interesting and instructive to review the situation as it appears upon the surface.

This will be but the third case directly affecting the railroads which has been brought before the courts under the statute alleged to have been violated, and is not paralleled by either of the other cases, which were actions against freight associations that were confessedly combinations of interstate carriers. The case of the Northern Securities Company, however, is unique. It is to be noted that the corporation at interest are an independent company, apparently not a combination of railroad properties; are not engaged in and do not contemplate entering into interstate commerce; their functions are solely financial—the holding and buying and selling of securities.

On the other hand, there is a broad principle involved either unseen or ignored by those whose interests are close to the corporation now called upon to defend or prove their legality. The owners of two or more railroads, individual or corporate, may have nothing to do with the management or operating of the transportation companies directly, but the motive which prompted the purchase, and the end to be attained, is obviously to increase earnings by some means for the benefit of the owners; a single control dominates the properties, at least indirectly, to insure harmonious action. It is a combination of interests which otherwise would be competitive, no matter how attained, and there is reason to look upon the method exercised, at least, as a violation in spirit, if not in letter, of the anti-trust statute.

The action of President Roosevelt was as startling as it was sudden, and as commendable as it was startling. If there is danger of powerful interests so great and so strong as to command legislation, there is grave danger to the State and to the people, and the sooner the judiciary passes upon the question the better for all interested, corporate and individual.

It is significant, however, that if it be found that the Northern Securities Company do not have the right to purchase the securities of the two former rival railroads, then neither has nor had one railroad the right to purchase the stock of another competitive railroad. Such being the case, would it not indicate that many of the gigantic combinations of railroad properties which have been going forward with rapidity since 1898 are more or less illegal?

On the other hand, should it be found that the charter of the Northern Securities Company is legally unassailable, what would there be preventing such a company from purchasing control of all or nearly all of the railways in the United States? Would not such a contingency precipitate a demand for Government ownership of all the carriers, with its attendant evils?

Under the circumstances the findings of the Supreme Court will be freighted with weighty consequences, and are awaited with the utmost interest.

There are in the United States to-day upward of 200,000 miles of railroad, about one-eighth of which, according to the Interstate Commerce Commission (or 25,311 miles), was absorbed by other lines during the period between July 1, 1899, and November, 1900. Since the latter date the consolidations have been at even a greater rate. Only eight months ago more than half of the railroad mileage of the United States was under the control of six great financial interests; to-day, for all practical purposes, there are but four of these syndicates in control, and it is asserted that unless some powerful legal restraint is exercised speedily nothing will prevent over 100,000 miles of railroad passing to the control of two great combinations of capitalists.

The Steam Turbine.

If the claims for the giant steam turbine installed in the power house of the electric light plant at Hartford, Conn., are warranted—a consumption of only 1½ pounds of coal per horse-power hour—it will be little less than revolutionary of engineering practice in the construction of prime motors. This result seems to have been reached in practical running, and there is nothing in the records to suggest that they are either accidental or temporary. The greatest economy attainable in a compound condensing engine of the reciprocating type assumes the consumption of 1½ pounds of coal per horse-power hour. With ordinary engines, even of large size, a consumption of 3 pounds is considered very good practice. As compared with the noncondensing reciprocating engines which this apparatus displaces, the company expect to cut their coal bill from \$5000 per month to less than \$1900.

The interest of the Hartford steam turbine resides in the fact that it is by far the largest engine of its kind thus far built. The generator to which it is coupled is rated as a 1500-kw. alternator, and at 1200 revolutions per minute, with 150 pounds steam pressure in the turbine, it should develop about 2000 horse-power of effective energy. It has been found, however, that the combined turbine and generator give a product in electrical energy about 40 per cent. above the rated capacity of the generator.

The history of the steam turbine is brief but interesting. It was first brought out by Charles A. Parsons in 1884, at Newcastle-on-Tyne, and found its initial employment in driving small electric generators. It commanded instant attention as possessing great potentialities of usefulness, and was taken up in 1895 by the Westinghouse Mfg. Company of East Pittsburgh, who acquired the American and Canadian rights. Still re-

garded as to some extent experimental, it is likely to come prominently to the front in England with the conclusion of the trials of the British Admiralty in its employment as a motor for light torpedo boats. The "Viper," thus equipped, has attained the record breaking speed of 36.86 knots per hour. It is understood that the American makers have greatly improved the comparatively crude device described in the Parsons patent, and the Hartford turbine represents the results of some five years' work in perfecting the proportioning and mechanical adjustments.

Among the advantages claimed for the turbine are that it occupies only about half as much room as a reciprocating engine of equal capacity; that having no frictional parts except the two main bearings its wear is minimized; that it is much more economical of labor by reason of its lower fuel consumption and the absence of parts requiring cleaning and care, and that it is initially much cheaper than a first-class engine. In actuating a generator it is coupled directly to the shaft and no power is lost in belting or gearing. These claims seem to be well founded, and they certainly make the new motor a matter of unusual interest to power users.

An interesting feature of the construction in the Hartford turbine is the provision for permitting the great spindle, or shaft, 19 feet 8 inches long, 6 inches in greatest diameter and weighing 28,000 pounds, to revolve on its axis of gravity instead of its geometric axis. The high speed of rotation requires that all vibration shall be guarded against. The bearings are made of a number of concentric rings of brass fitting loosely one within another, the annular spaces between them being filled with oil. This forms what is described as a self centering cushion, which effectually prevents any vibration and permits it to center itself while running. These bearings are automatically lubricated by an oil pump. To counteract end thrust in the shaft due to axial impact of the steam on the moving blades it is held in equilibrium by three balancing disks, which are pistons rotating in their cylinders with the steam pressure on one side. So much of the end thrust as these disks do not counteract is taken up by the ordinary device of a thrust block.

The speed regulation of the motor is said to be excellent. It is extremely sensitive to the governor, which is of the ordinary ball type, and is adjustable to run with a fraction of 1 per cent. variation between no load and full load. How little friction is developed in this form of motor may be seen from the fact that, owing to the inertia of the rotating parts and the speed of revolution, the Hartford turbine will continue running for 20 minutes after the steam is shut off.

In the critical study of the steam turbine, for which no opportunity is offered in editorial comment, the thought suggests itself that the cycle of development in steam motors has brought us round very close to the starting point, and that this latest, and in some respects most promising form of engine actuated by steam is, after all, a combination of Branca's wheel and Hero's eolipile. The former, as all students of the beginnings of mechanics will recall, from the description of it published in Rome in 1629, is shown in the twenty-sixth of the 63 plates, and consists of an eolipile in the form of a negro's head heated on a brazier, from the mouth of which an issuing breath of steam is directed against pallets or vanes on the periphery of a wheel which was expected to revolve and, by means of gearing, to furnish power for various useful purposes. The latter is described in the fifteenth problem of "Spiritalia," which is perhaps the most remarkable work on mechanics ever

written. The device which has induced many writers to proclaim Hero as the inventor of the steam engine is certainly the earliest description of a machine moved by steam which has survived in literature. It consists of a hollow sphere from which two short tubes project in the line of its axis, having open ends pointing in opposite directions. Steam is admitted to the sphere from the boiler below it through hollow trunnions. The steam turbine combines the principles embodied in Branca's wheel and Hero's revolving eolipile in a modern mechanical expression, and thus in the earliest and latest forms of steam motors the sixteenth and twentieth centuries strike hands, as it were, and a cycle of progress brings us back to the starting point, with no other important differences than that attributable to larger requirements and better appliances and materials for meeting them. This is not surprising. All progress is from the simple, through the complex, back to the simple. The evolution of the crude idea is effected by building upon it that which at first seems necessary or desirable, but which is afterward trimmed down and, perhaps, in the end eliminated. Every inventor follows this course in his own work, and so do generations of men. If experience shall show that the steam turbine is a practical and economical substitute for the steam engine, the conclusion will be inevitable that a vast amount of study and work has been wasted in developing a type of motor which, in its highest refinement, is not so good as one in which the steam passes straight through, thus avoiding pretty much everything for which the mechanical engineer has striven for a century.

For a number of years past coke makers in Germany have been adopting to an increasing extent the practice of ramming the charges of coal for the coke ovens by special machinery. Quite recently experiments in the same direction have been made in Nova Scotia with really surprising results, so far as the structure and physical properties of the coke are concerned. The result is that engineers have taken up the matter with a good deal of zeal, and we may look forward to important developments. With our large modern blast furnaces the subject of tender coke is becoming more and more a vital one, and it begins to look as though the practice of ramming the coal previous to charging will aid in extending the sources of supply of available fuel for our furnaces, and make iron makers more and more independent of a few districts, whose coal was regarded as standard for coking.

The Thornton Machinery Company.—The stock holders of the A. B. Pitkin Machinery Company, Providence, R. I., at a meeting held February 6, 1902, voted to go into voluntary liquidation and to wind up the business. In a circular sent out by the Liquidation Committee they state: "The company are perfectly solvent, and as rapidly as the collection of accounts and the sale of stock on hand will permit all accounts will be promptly paid." James T. Thornton, acting as agent for the committee, is at present in charge of the business and at the same time and at the same location is conducting the Thornton Machinery Company, and in an announcement just sent out to the trade says: "The Thornton Machinery Company have been formed for the purpose of carrying on the same line of business as heretofore conducted by the A. B. Pitkin Machinery Company, and while the Pitkin Company are in liquidation both concerns will be located in the same building in order to facilitate the more quickly closing out of the Pitkin Company's stock. The business of the A. B. Pitkin Machinery Company was originally established by A. B. Pitkin many years ago and was incorporated in 1891.

CORRESPONDENCE.

The Car Famine.

To the Editor: We note with interest your article on "The Car Famine," page 5, *The Iron Age* of February 27. In this article there appears the following paragraph:

"The reports for 1900 and 1901 show that the Pennsylvania Railroad had 95,724 cars in the freight service, the Pennsylvania Company 44,983, the Baltimore & Ohio Railroad 54,343, the Panhandle Railroad 13,710 and the Pittsburgh & Lake Erie about 8000. Each of the above roads has added about 2000 cars or more to its freight equipment since then, and the Pennsylvania Railroad and Baltimore & Ohio have probably built 10,000 new cars, and yet they are short of equipment now. The Panhandle Railroad does not own many coal cars, as it uses the Pennsylvania Company cars almost exclusively, and it has at all times about 25,000 Pennsylvania Railroad cars in use on the main lines and branches, so that it takes about 45,000 cars to keep the regular business of that system moving."

I beg to call your attention to the fact that you are in receipt monthly of a copy of the *Official Railway Equipment Register*, and that the February issue of the *Register* gives the following official figures relative to freight car equipment:

Pennsylvania Railroad, pages 15 to 18, inclusive	112,441
Pennsylvania lines west of Pittsburgh, pages 22, 23	47,018
Pennsylvania system	159,459
Bessemer & Lake Erie Railroad, page 25	6,870
Pittsburgh & Lake Erie Railroad, pages 36, 37	9,805
Baltimore & Ohio Railroad (proper), pages 56, 57	61,577
Balance Baltimore & Ohio Railroad system, pages 58-61, inclusive	21,129
Baltimore & Ohio system	82,706
Aggregate cars available owned by lines entering Pittsburgh	258,840
Of this number the following cars are classified as coal, coke, gondola and flat cars:	
Pennsylvania Railroad	70,850
Pennsylvania lines west of Pittsburgh	28,132
Total Pennsylvania system	98,982
Bessemer & Lake Erie Railroad	6,856
Pittsburgh & Lake Erie Railroad	8,925
Baltimore & Ohio system	47,114
Total	161,877

I have brought these facts to your attention because I believe that in writing an article of this kind *The Iron Age* desires to give up to date information rather than to give approximations, as was the case in the article referred to, and thought that possibly the fact had been overlooked that available official information on this subject was at hand.

G. P. CONRAD.

President, *Official Railway Equipment Register*.
NEW YORK, March 1, 1902.

The Robins Conveying Belt Company, New York, have located for permanent exhibition a working model of their 20-inch coal handling equipment, in the Machinery Hall of the Bourse, Philadelphia, Pa. This model is an exact one-quarter scale reproduction of the 20-inch equipment, fitted with automatic tripper or distributing device, and illustrates the adaptability of the system for handling coal direct from the cars to the bins supplying automatic stokers—or for other purposes.

The American Galvanizing Works, Frank E. J. Pugh, manager, have established works at 1247 Fillmore street, Chicago, corner of Rockwell street, and are prepared to fill orders for galvanizing steel angles, flat bars, channels, &c. They are also dealers in galvanized angles, bars, bands, channels, &c., making a specialty of material for wind mills, and are prepared to make immediate shipment. They have facilities for galvanizing long bars, not to exceed 20 feet. The location of the works enables them to handle their business by rail, saving the expense of cartage.

The Differentiation of the American Locomotive.

BY J. C. BAYLES, NEW YORK.

The completion of the twenty thousandth locomotive built by the Baldwin Locomotive Works of Philadelphia, appropriately celebrated on February 27, affords opportunity for a comparison of the engines of 1832 and 1902 which is both interesting and instructive. Nothing could better illustrate the mechanical progress of 70 years, especially if opportunity offered to note in detail the shop equipments which enabled the engine of 1832 to be built in a little less than two years, as contrasted with that which permits an output of finished locomotives of the 1902 type at the average rate of one every four hours. This, however, is impossible in the limits of a single article. To compare the engines built 70 years apart and note some of their more striking characteristics is all that is possible at this time.

"Old Ironsides," the 1832 engine, was a four-wheeler, modeled essentially on the English practice of the time. It belonged in what is known as the "Planet" class and weighed a little over 5 tons. The rear, or driving, wheels were 54 inches in diameter, on a crank axle placed in front of the fire box. The cranks were 39 inches from center to center. The forward wheels were simply carriers, 45 inches in diameter, on an axle placed just back of the cylinders. The cylinders were 9½ inches diameter and 18 inches stroke, and were attached horizontally to the outside of the smoke box, which was D shaped, with sides receding inwardly, so as to bring the center line of each cylinder in line with the center of the crank. The wheels were made with heavy cast iron hubs, wooden spokes and rims, and wrought iron tires—a form of wheel which would give the modern locomotive engineer a cold shiver up and down his spine. The engine frame was of wood and was built outside the wheels. The boiler, in a crude and rudimentary way, was very much like those of much more recent date. It was 30 inches diameter and contained 72 1½-inch copper tubes 7 feet long. The valve motion was given by a loose eccentric for each cylinder, placed on the axle between the crank and the hub of the wheel. The engine was reversed by changing the position of the eccentric on the axle by a lever operated from the foot board. The rock shafts, under the foot board, had arms above and below, and the eccentric straps had each a forked rod, with a hook at their extremities to catch and engage with the upper or lower arm of the rock shaft. The eccentric rods were raised or lowered by a double treadle, so as to connect with the upper or lower arm of the rock shaft, according to the desire of the driver for a forward or backward gear. The exhaust of both cylinders was by a single pipe running across from one to the other, from which rose midway between the cylinders a vertical extension into the stack. This was so obviously bad that it is surprising its defects did not strike the builder. It created the disadvantage of making one cylinder exhaust against the other, and the defect was subsequently remedied by the method still in use. The steam joints were all made with canvas and red lead, after the English practice of the time, and that they leaked badly is not surprising. In an account of the trial trip of this remarkable engine (which bore much the same relation to the modern locomotive that prophecy bears to the happening prophesied) which appeared in the *Philadelphia Chronicle* of November 24, 1832, we find the following: "After the regular passenger cars had arrived from Germantown in the afternoon, the track being clear, preparation was made for her starting. The placing fire in the furnace and raising steam occupied 20 minutes. The engine (with her tender) moved from the depot in beautiful style, working with great ease and uniformity. She proceeded about half a mile beyond the Union Tavern, at the township line, and returned immediately, a distance of 6 miles, at a speed of about 28 miles an hour, her speed having been slackened at all road crossings, and, it being after dark, but a portion of her power was used. It is need-

less to say that the spectators were delighted. From this experiment there is every reason to believe that this engine will draw 30 tons gross at an average speed of 40 miles an hour on a level road."

This mechanical miracle was run when the weather was fair on a schedule of three round trips daily between Philadelphia and Germantown. When the weather was not fair horses were used. The reason for this discrimination was probably that as a locomotive cost \$3500 and would rust, whereas a horse cost, say, \$75 and would not rust, it was cheaper to use horses than locomotives in bad weather, when the extra travel attracted by the novelty of steam traction could not be expected.

But notwithstanding the commendation it received "Old Ironsides" was by no means perfect. On her first trip to Germantown with a passenger train one of her drivers slipped on the axle, causing its derailment. Owing to defective valves the pumps would not feed the boiler. Moreover, the slipping of the wheel on the axle locked the eccentric so that it would not operate in backward motion. When these defects were corrected it made its run whenever required, giving very good satisfaction and hauling all the load it was good for, which was not enough to met the requirements of the service. The grade at the Germantown end of the line was 48 feet to the mile, and the engine was not heavy enough to draw a train up it.

When "Old Ironsides" was finished and paid for—which did not happen until after certain differences between the builder and the management of the road had been arbitrated—Mr. Baldwin declared that once in a way was enough experience of that kind and that he would never build another. But he was mistaken. He kept on building them until he died, and his successors have continued doing the same ever since. During the 70 years of their continuous operation they had built up to February 27 20,000, and it is to the twenty thousandth that we now turn to note what the progress of this long period has been in locomotive design and construction.

This engine, built for the Plant System, is a ten-wheel four-cylinder balanced compound engine, for heavy service at high speeds when necessary. It is not of the fast passenger type, but rather of the fast freight classification. The boiler and tender are built from designs of Cornelius Vanderbilt, who is doing good work in this line. The boiler is of the wagon top type, 62½ inches in its least and 80½ inches in its greatest diameter. It burns soft coal and its working steam pressure is 200 pounds. The boiler contains 341 steel tubes of 2 inches diameter, 15 feet long, giving 2665 square feet of heating surface. The fire box is 131 inches long by 55 inches diameter, and has an area of 128 square feet. The grate area is 27¼ square feet. The six driving wheels are of 73 inches diameter, with cast steel centers and bronze hub plates. The journals are 8½ x 12 inches. The total wheel base is 29 feet 2 inches. The total weight of the engine is 176,510 pounds (88¼ net tons), of which 127,010 pounds are carried on the driving wheels. The engine frame is of forged iron, with welded joints, and is wholly inside the working parts. The driving wheel tires are of open hearth steel, as are the driving axles and axle cranks. The saddle is cast in two parts, each part containing one high and one low pressure cylinder and a valve chamber. The Stephenson link valve gear and the two-armed rock shaft are used. Its general descriptive list may be tabulated as follows:

Type	Four cylinder, balanced compound.
Cylinders	15 and 25 x 26 inch.
Valves	15-inch balanced piston.
Motion	Stephenson link.
Boiler and tender	C. Vanderbilt.
Frames	Wrought iron.
Driving wheels, diameter	73 inches.
Driving wheel base	14 feet 1 inch.
Engine wheel base	29 feet 2 inches.
Total engine and tender length	50 feet 8¾ inches.
Working pressure of steam	200 pounds.
Heating surface: fire box, 128 square feet; tubes, 2665 square feet=	2793 square feet.
Weight on drivers	127,010 pounds.
Weight on truck	49,500 pounds.
Weight of engine	176,510 pounds.
Weight of engine and tender	276,000 pounds

In a description of this engine, setting forth the special advantages claimed for some of the more novel features of its construction, the makers say:

"The low pressure cross heads and guides on each side of the locomotive are located outside the frames, and the cross head is coupled with the main driving wheel, which in this locomotive is the front wheel, by a connecting rod, as in ordinary practice. In addition the main axle has two cranks, set at right angles to each other, one on each side of the center of the locomotive; and each crank is coupled to a cross head of one of the high pressure pistons. The crank on the axle and the crank pin in the wheel for the corresponding high and low pressure cylinders are set at an angle of 180 degrees. The two axle cranks being set at 90 degrees, brings the action of each high and low pressure cylinder on one side of the locomotive quartering with the equivalent cylinder on the opposite side. The steam passages in the cylinders are so designed that there are no pockets where water can collect. Certain advantages are expected of this system of compounding besides the recognized ones of economy of fuel and steam. The most important one is that by a crank axle connected with pistons traveling in opposite directions from each other an almost perfectly balanced engine is secured. The main driving wheels are practically self counterbalanced by the positions of the inside cranks with relation to the outside crank pins and their respective connections. It is only necessary to counterbalance such portions of the main wheels as are not sufficiently balanced by the cranks. The other driving wheels are counterbalanced each for its own rotating weight. As the reciprocating weights of the high and low pressure pistons and their connections move in opposite directions at the same time, they are within a few pounds of each other and the locomotive is only out of balance to that small extent. Thus we have a machine that will allow the maximum load on the driving wheels without detriment to the track, there being no unbalanced rotating weight in the wheels to either tend to lift the wheel or exert additional weight on the rail. As an offset to the objections pertaining to a crank axle, and the duplication of guides, cross heads and main rods, there is no variation in the vertical stress upon the rails, and consequently no need of allowing for it in the weight put on the driving wheels. The boiler can be made as large as the engine will carry, the speed of the locomotive is increased and it can attain its maximum speed with minimum risk. This combination of the large boiler with the perfection of balance makes the locomotive well adapted for drawing fast, heavy passenger trains."

The expert, from such data as we have given, will be enabled to institute a comparison between the first and the twenty thousandth Baldwin locomotive which will not only give a very good idea of the progress of the art during 70 years, but will inspire him with great respect for the mechanic who, with no machine tools and with a restricted choice of materials available for his use, could make as good a guess at the locomotive engine of the future as "Old Ironsides" undoubtedly was. The points of difference are much less surprising, all things considered, than the points of resemblance. The development is scarcely more than the process which naturalists call "differentiation of the type due to change of environment." The comparison may very well suggest the thought that "there were giants in those days."

A Steel Plant at Bridgeport, Conn.—Under the auspices of Frank A. Wilmot, president of the American Tube & Stamping Company, successors to the Wilmot & Hobbs Mfg. Company, an open hearth steel plant is to be built at Bridgeport, Conn. There is in view the building of an electric road and a site on Bridgeport Harbor provided facilities and co-operation are afforded. It is proposed to build a works for making both steel billets and steel castings, with a daily capacity of 200 to 300 tons per day, and a modern blooming mill. Ultimately a blast furnace using foreign ores may be built by the different consumers of pig iron in Bridgeport and vicinity.

The Agreement in the British Engineering Trade.

GLASGOW, February 12, 1902.—Nowhere more than in the west of Scotland is there reason for regret at the delay in the completion of the permanent agreement in the engineering trade that was recently provisionally signed by the executive officials of the Employers' Federation and of the allied tradesmen. On submission to a ballot of the men, 16,563 voted against it and 9714 for it, but then only 26,277 voted out of a total membership of 110,000. It is argued that the nonvoters are not opposed to the measure or they would certainly have recorded their votes, for trade unionists don't keep silent when they do not want a thing. The cause of the adverse vote in so small a ballot is believed to be due to a misunderstanding in some of the branches of the provisions relating to piece work. That will be put right, and the trade union officials, who regard the agreement as one eminently favorable to the workers, will doubtless take an early opportunity of securing a confirmatory vote. Personally I have no doubt that the agreement will eventually be ratified, notwithstanding that the engineering industry is one in which trade unionism is supposed to have reached its highest expression of organized strength, and in which the misuse of strength in the past has been most severely denounced. With all the more gratification, therefore, one now recognizes and welcomes in the measure the most signal example of trade union wisdom and prudence that one can recall in the annals of labor. I am disposed to regard this agreement, if and when it is consummated, as an augury that the trade unions of the country are now preparing a rise on stepping stones of their dead selves to higher things. This may seem an extravagant assumption to a casual reader of the terms of the treaty; not so to those who are familiar with the history of the long and painful struggles in this trade, and with the circumstances which have culminated in the proposed compact. It is the fruit of the harvest that was sown at the termination in January, 1898, of the great strike, the memory of whose seven months of turmoil still lingers. That great struggle left many scars, but it brought the employers and the employed together in a manner that has been most beneficial in its general results. Each side had during the contest learned to respect the strength and the determination of the other, and each side has, since the contest, learned to esteem and confide in the other. A spirit of mutual confidence now characterizes the relations between the Executive Councils of the Allied Trade Unions and the Engineering Employers' Federation such as would have seemed incredible four years ago, and which we would fondly hope to see developed in other industries.

The most remarkable and impressive thing about the new agreement as formulated does not appear in the text. It rests in the fact that this document would confirm and render permanent conditions which in 1898 the trade unions only accepted because they then could not help themselves, and were determined to cancel (if they could) at the earliest opportunity. At the end of four years' experience of these conditions the same trade unions are to voluntarily adopt the whole of them—merely cast in clearer and more definite form—and make them the subject of a permanent "signed, sealed and delivered" deed of agreement. Terms which, to the leaders in the former contests, seemed when proposed to be intolerable are now found to be of the highest material benefit to the industry, and therefore to all the workers in it. The constant intercourse between the respective executives resulting from the "Terms of Settlement" of 1898 has served to clear away a lot of misunderstandings, and to render possible arrangements and developments that previously would not have been practicable. The trade unions in coming face to face with their employers in the local and central conferences have learned to know them as they never did before, and to perceive the exigencies of the industry to which they formerly shut their eyes. Thus it is that the new agreement formulates peacefully conditions as to the management of works, freedom of employment, piece work, and, above

all, the manning of machine tools and the training of operatives to tend them, that prior to 1897 were the causes of constant contention and led to the great strike of that year. This new agreement will amount to a formal acknowledgment of what all enlightened trade unionists now frankly admit in quiet conversation—that the preservation of the industrial supremacy of this country against the encroachments of foreign countries renders it imperative that the instruments of production should be under the absolute control of the employer. Successful production is quite impossible if the master is fettered in the introduction of machinery and in the selection of labor. The essence of the agreement, therefore, is freedom on each side, and co-operation of both. Thus, "The employers shall not interfere with the proper functions of the trade unions, and the trade unions shall not interfere with the employers in the management of their business." The trade unions obtain complete recognition, are formally conceded the right to negotiate collective bargains for their members; are assured that piece work rates shall always be such as to enable a man to earn at them not less than he could earn at time wages and as much more as his merit warrants; and are safeguarded against displacement by nonunion men as such. And the rights of nonunion labor are conserved and are not to be interfered with, any more than is the operation of machine tools. It has, of course, long been evident to employers and onlookers that unless we have the same facilities for the introduction and utilization of machinery as America has we shall eventually be run out of the industrial race. It must be a matter for great thankfulness when our workmen severally recognize and frankly admit this.

In no respect is the agreement more admirable and exemplary than in the set of "provisions for avoiding disputes." This is, perhaps, hardly a correct term to use. Disputes must necessarily arise from time to time in all human relations, and certainly they cannot be altogether "avoided" in an industry with so many ramifications as that known generally as the engineering trade. It is hardly possible, therefore, to devise any form of agreement that will prevent the occurrence of disputes. What the framers of the agreement have done, however, is to formulate such conditions as will avoid strikes when disputes do arise. The workmen are to have free access to their own employers in the case of any disagreement, and they can demand a meeting through their own deputies. If in such interviews an understanding cannot be effected, either party may refer the matter to a conference of local representatives of the employers' associations and of the trade unions. At any time, indeed, a local conference can be summoned on 12 days' notice by either party desirous of raising a question. If a local conference is unable to effect a settlement of any dispute, the matter is to be referred to a conference of the Executive Board of the Employers' Federation and the central authority of the trade union concerned—whose decision should be final, but—and here is the important point—"until the question has been discussed in local central conferences there shall be no stoppage of work either of a partial or a general character, but work shall proceed under the current conditions."

The significance of this voluntary adoption of peaceful methods and business procedure by the Amalgamated Society of Engineers will seem all the more impressive when one recalls that this society is looked up to as the foremost trade union in the world, that it has a membership of upward of 90,000 distributed all over the country, and that though its funds were practically exhausted at the end of the strike four years ago it has now a capital accumulation of close upon £500,000. It was never in so good a position to fight. But the losses and sorrows of previous wars, and the pleasant experiences of the past four years, have impressed the trade union leaders with the folly of fighting, and with the wisdom of placing the relations between employers and employed on a permanent business basis. This is why they recommended the agreement to their members, and this is why we may expect to see it confirmed very soon, notwithstanding the apparently adverse vote last week. Some of the adverse vote was due to misunderstanding, and some, doubtless, to intrigues—for in all organiza-

tions there are always wheels within wheels. Associated with the Amalgamated Society of Engineers in the compact are the United Machine Workers' Association and the Steam Engine Makers' Society. The last named recorded a majority in favor of the agreement. The aggregate membership of the three societies is about 110,000. All are largely represented in this locality, where all classes of the community are more or less interested in some branch of industry associated with engineering.

The connection with the greatest of our industries—shipbuilding—is, of course, very close, and therefore the progress of the negotiations is watched here with probably greater intensity of interest than elsewhere.

Notes from Mexico.

The Tehuantepec Railway and An Isthmian Canal.

DURANGO, February 25, 1902.—The discussions in the press of the United States, and the action of Congress in regard to the construction of a canal across Nicaragua or Panama, are followed with much interest in Mexico. The proposed undertaking is one which is likely to directly affect the transportation business of this country in the future, inasmuch as the Tehuantepec railways, upon which reconstruction work is now being vigorously pushed, will be a direct competitor with the waterway, which ever route may finally be selected by the Government of the United States. A recent interview with Sir Weetman Pearson is reproduced by the press here, and the sanguine views of that gentleman as to the advantages which the Tehuantepec route offers as compared with any possible canal scheme are accepted without question. These views may be summarized in a single sentence: "The direct route to the Philippine Islands will be via our road. All the coal, iron, oil, cotton, sugar and tobacco will be taken by water to Coatzacoalcos and over our railroad across Mexico to the Pacific." Sir Weetman contends that the Tehuantepec route will not only be the shorter, but that the rates by rail upon the goods carried will only be half as much per ton as the canal tolls. The views of the English contractor may possibly prove to be right, but it would appear to be a matter which can be settled by time alone as to which of the routes will be the most patronized by shippers. Sir Weetman Pearson carefully avoids reference to the cost and inconvenience of breaking bulk, the port expenses at the ports of unloading and reloading and the hundred other items of cost incidental to maritime movements in an interrupted—or rather, a double—voyage—all important factors of which account will be taken by merchants and exporters before directing their boxes and bales of merchandise. There may perhaps be traffic enough for both railway and canal; at any rate, if both are completed and enter into competition for business the result cannot fail to be advantageous to trans-continental shippers.

Orders for Rails.

Active preparations are being made for the work of standardizing the track of the Mexican National Railway. It is reported locally that 115,000 tons of rails intended for this work were ordered from a Philadelphia company and a Belgium concern, half going to each, and that later the United States company transferred their quota of the order to the British Rail Association. The Belgium company, known as the Société John Cockerill, announce the fact that they have sold a large lot of rails to the National Railway Company, and regularly solicit orders through the Mexican press for railway and bridge supplies, promising "prompt delivery."

United States Citizens in Mexico.

Under the directions of the State Department the United States Consul-General in Mexico has recently made an attempt to obtain statistics as to the number of United States citizens there are in Mexico, the lines of business in which they are engaged and the amount of capital invested in such businesses. Circulars containing blanks, with letters requesting that the required data be supplied, were distributed throughout the States

of the Republic. The slips were very generally filled out and returned as desired. In his report to his Government the Consul estimates that there are some 10,000 citizens of the United States in Mexico engaged in various spheres of industry and exploitation. The effort of the State Department to obtain the information referred to created some comment in the Mexican press, whose editors are sensitive in matters which seem to emphasize the steady growth of Northern influence in their domestic affairs. As the population of the Republic is something over 13,000,000, these 10,000 active business men and workers from beyond the Rio Grande represent but a very small leavening of the lump, although with their capital and indomitable energy they are performing wonders here.

The New Steel Works at Monterey.

The annual meeting of the stockholders of the company who own the new steel plant at Monterey was held early in the present month. It was announced that operations would be entered upon for the purpose of opening up new coal fields acquired by the company, and that all the coal used at the works would ultimately be taken from the company's own mines, thus effecting a great saving. A local paper reports that the stockholders "were told by the management that the new foundry would be completed in a few weeks, and that when it was finished the company would be in a position to manufacture every tool and piece of machinery used in the plant." Most of the stockholders were present at the meeting, and they seemed encouraged by the information imparted to them. The new Board of Directors is composed of the following gentlemen: Antonio Basagolt, Eugene Kelley, Tomas Braniff, Leon Signoret, Francisco Izaguirre, Isaac Garza, Vicente Ferrara, A. Zambrano and Valentin Rivero.

The Executive Committee is composed of Ildefonso Zambrano, Francisco Belden, Jose Armendiaiz and Jose Negrete.

The company expect to have their rail mill in operation before the close of the year.

Copper Exports.

This country is fast coming to the front as a copper producer. There is great activity in developing copper mines, and the exports of copper matte are yearly increasing. In the fiscal year ending June 30, 1901, 6583 tons was shipped to Liverpool, while to the United States and Europe more than 25,000 tons were exported. A large increase in the shipments is expected this year.

Growth of Foreign Commerce.

The following tables are of interest as showing the steady increase in the volume of the imports and exports of this Republic:

Value of Imports, in Gold.	
Years.	Value.
1893-94.....	\$30,287,489
1894-95.....	34,000,400
1895-96.....	42,253,938
1896-97.....	42,204,095
1897-98.....	43,603,492
1898-99.....	50,869,194
1900-1901.....	61,318,175

Value of Exports, in Silver.	
Years.	Value.
1893-94.....	\$79,343,287
1894-95.....	90,854,953
1895-96.....	105,016,902
1896-97.....	111,346,494
1897-98.....	128,972,749
1898-99.....	148,453,834
1899-1900.....	158,247,933

J. J. D.

The Muskingum Valley Steel Company.—At the annual meeting of the stockholders of the Curtis Sheet Steel & Corrugating Company, held in Zanesville, Ohio, last week, the following Board of Directors were elected to serve for the coming year: L. T. Jack, W. L. Kirkland, W. S. Fiscus, James McMahon, W. L. Walker, Geo. S. Phillips and W. S. Horner. By resolution the name of the concern was changed to the Muskingum Valley Steel Company. The Board of Directors met and organized by electing the following officers: L. T. Jack, president; James McMahon, vice-president; W. L. Walk-

er, secretary and treasurer, and W. E. Lloyd, manager. Goff, Horner & Co., Limited, of Pittsburgh, will represent the company in the market, selling their entire output of black, corrugated and galvanized sheets. The mill has a large stock of raw material on hand, with orders booked to keep the plant running full up to July.

Foundry Costs.

One of the last bulletins issued by the American Foundrymen's Association contains an article on foundry costs, from which we reprint the following:

Those of our foundrymen who are accustomed to careful records in their works, in order to detect any possible leaks or insufficient economy, will be interested in the following table showing the cost of 100 pounds of castings made during the fiscal year ending June, 1901. For obvious reasons no names are given. The original, printed in the bulletin, gives the figures for every month of 1901. We print below the averages for a series of years:

	Foundry Costs.			
	1901.	1900.	1899.	1898.
Cost of materials:				
Metals	0.7694	0.8479	0.4942	0.4589
Melting	0.0436	0.0453	0.0380	0.0368
Molding	0.0080	0.0072	0.0063	0.0062
Cores	0.0161	0.0138	0.0123	0.0138
Salaries	0.4729	0.4550	0.4172	0.4346
Misc. expense.....	0.0583	0.0514	0.0417	0.0482
Cost per 100 lb. castings	1.3683	1.4206	1.0097	0.9985
Weight of good castings	17,802,844	21,965,408	23,562,841	20,117,909
Defective castings, per cent.....	2.8	2.2	2.1	2.5

For a series of years the cost was as follows:

Cost per 100 Pounds Castings.			
Average.	Average.	Average.	
1897.....1.0866	1892.....1.2892	1887.....1.6900	
1896.....1.1469	1891.....1.3457	1886.....1.5600	
1895.....1.1332	1890.....1.4611	1885.....1.5900	
1894.....1.1442	1889.....1.4842	1884.....1.8200	
1893.....1.2687	1888.....1.5320	1883.....1.8700	

This foundry does general jobbing work and makes car wheels.

Melting Loss in the Foundry.

A bulletin of the American Foundrymen's Association contains the following data on melting loss in the cupola which used burnt material:

A. A selection of burnt grate bars, in fair condition, was remelted. The charge of 2000 pounds resulting in 1875 pounds of good material. Melting loss, $6\frac{1}{4}$ per cent. The castings were entirely white; 0.4 per cent. of ferromanganese was added to a quantity of the melt, this, when set, was gray in fracture. Evidently the high silicon in the ferromanganese did it. Another test with this treated material gave a depth of chill of 7-16 inch.

B. Two thousand pounds of the worst burnt grate bars were now melted, resulting in a melting loss of 8 per cent. The castings were again white, and this time the addition of 0.4 per cent. of ferromanganese had very little effect on the fracture. Similarly the chill obtained was 12-16 inch.

It is very evident that the ferromanganese, with its high silicon, expended itself in removing the oxidation effects, and could do little in promoting the formation of graphite.

Bridge Commissioner Lindenthal of New York City has made public his plans for increasing the efficiency of the Brooklyn Bridge and relieving the existing crush on that structure. They are of an elaborate character, involving an expenditure of \$14,500,000, and would take six years to consummate. Mr. Lindenthal claims, however, that if adopted his plans would increase the capacity of the bridge from 36,000 passengers an hour, of whom only 16,000 have seats, to 110,000 passengers an hour, of whom 80,000 would have seats. The plans provide for an elevated railroad connection between the existing bridge and the new Williamsburg bridge now under construction; for larger bridge terminals in Manhattan and Brooklyn; for an unobstructed connection with the underground railroad, and for the use of moving platforms as a means of transporting the largest possible number of passengers.

MANUFACTURING.

Iron and Steel.

We are officially advised that the report that the Youngstown Iron Sheet & Tube Company would build mills for rolling structural steel is incorrect. This concern will confine themselves to the manufacture of wire, iron and steel sheets and pipe, black and galvanized. They will make a specialty of double refined puddled iron sheets and pipe.

The report that it is the intention of the American Sheet Steel Company to erect an open hearth steel plant and sheet mills at Carnegie, near Pittsburgh, is incorrect. Any extensions to existing plants of this concern will probably be made to works located in the Kiskiminetas Valley. A concentration of plants has been made at this place in the last year or two, and the sheet mills formerly located at Carnegie were removed to Vandergrift during the strike of last year.

Plans have been made by the American Sheet Steel Company for large extensions to the Wellsville Works, at Wellsville, Ohio, and also the W. Dewees Wood Works, at McKeesport, Pa. Four mills will be added to the Wellsville plant, increasing it from a six to a ten mill plant. The main building also is to be extended about 100 feet and the entire structure will be rebuilt of steel, but this will not interfere with the operation of the plant. Two of the present mills are to be thoroughly modernized. At McKeesport, three mills are to be added, increasing the size of the plant from 13 to 16 mills. When the additions are completed, Persifor F. Smith, the district manager, will have 26 mills under his jurisdiction instead of 19.

The Lawrence Furnace Company, at Ironton, Ohio, have given their men an advance of 10 cents per day in wages.

It is stated that when the new steel car plant, now being built by the Cambria Steel Company, at Johnstown, Pa., is finished, the concern will have a capacity for turning out from 50 to 60 steel cars per day.

The Pittsburgh Seamless Tube Company have resumed operations at their plant at Beaver Falls, Pa., after a year's idleness.

It is reported in Duluth that the Deering Harvester Company, Chicago, are negotiating for the purchase or lease of the blast furnace at West Duluth. The property is owned by the Duluth Furnace Company, of which J. M. Thomas, now of Milwaukee, is the head. The Deering people have been acquiring ore properties, and are now negotiating for an extensive undeveloped mine near Hibbing.

At the regular meeting of the stockholders of the Midvale Steel Company, held at Philadelphia, Pa., last week, the following Board of Directors were re-elected: Charles J. Harrah, James T. Sullivan, William Sellers, John Sellers and Axel Petre.

Extensive improvements are to be made at the Hazleton mill of the Republic Iron & Steel Company, at Youngstown, Ohio. When this plant was first taken over by the Republic Iron & Steel Company it was allowed to remain idle for some time, and the first intention of the concern was not to operate the plant. However, the demand for material became so large that the company needed the product and the works were started up and have been running night and day for some months and are now to be extensively improved.

Hagar & Sons started up their new rolling mill at Granite City, Ill., February 27. The product is bar iron.

We can state on official authority that the report that the National Steel Company would build another blast furnace at New Castle, Pa., is incorrect.

Early in April, the Ohio Works of the National Steel Company, at Youngstown, Ohio, will go on rails. The plant has been running on billets, sheet and tin bars for some months.

A difficulty among the puddlers at the Valley plant of the Republic Iron & Steel Company, Youngstown, Ohio, and which resulted in a strike of the puddlers, was settled at a conference held between officials of the Amalgamated Association and the works. The men complained of the quality of the coal being furnished, stating they could not get out their regular output of puddled iron. The matter was adjusted in a manner satisfactory to both sides.

Worth Bros. Company will erect four additional 60-ton open hearth furnaces of modern build and equipment at their Brandywine rolling mills, Coatesville, Pa.

It is stated that the Rockhill furnaces, at Rockhill, Huntingdon County, Pa., which have been idle for several years, are to be started up by a new company, to be known as the Rockhill Furnace Company, with a capital of \$100,000.

The G. L. Bollinger Company, contracting engineers, of Pittsburgh, successors to the Liberty Construction Company, have bought a three-acre site at Verona and will build a large manufacturing establishment. The plot is on the Plum Creek branch, near the Verona Tool Works. The present works, located at 2817 to 2823 Liberty avenue, Pittsburgh, will be removed to the new location. Everything in the line of structural steel will be made. A foundry will be part of the plant.

The Kentucky Iron Roofing & Corrugating Company, Covington, Ky., have been incorporated with a capital stock of \$25,000 for the manufacture of roofing iron and siding. The company

are erecting a plant, 60 x 200 feet, which will be equipped with latest improved machinery. The machines are being built by George C. Keene & Co. of Cincinnati, Ohio, and will be operated by electricity. It is expected that the plant will be ready for operation by April 1. The incorporators are John C. Droegge, treasurer of the Licking Rolling Mill Company; Fred Macke and J. H. Mersman.

The Commonwealth Steel Company, 415 Locust street, St. Louis, Mo., have purchased 18 acres of land on the east side of the Mississippi River opposite St. Louis, upon which they will build a large steel casting plant which they expect to have in operation by October 1. The officers are: President, James Hopkins, vice-president Diamond Match Company; first vice-president, Wm. F. Niedringhaus of the National Enameling & Stamping Company; second vice-president and manager of sales department, J. S. Andrews; general manager and secretary, O. S. Pulliam, formerly secretary of American Steel Foundry Company; treasurer, L. J. Hayward, formerly treasurer of American Steel Foundry Company; works manager, C. T. Westlake, formerly general superintendent American Steel Foundry Company.

The Means & Fulton Iron Works, Birmingham, Ala., have secured a contract to erect at Taylor, Texas, a wheat pit 40 feet diameter and 40 feet high, and one for Greenville, Texas, 34 feet diameter and 40 feet high; also a contract with the Tennessee Coal, Iron & Railroad Company to build a steel crane runway for their billet yard, and one to extend cast house for the North Alabama Coal, Iron & Railroad Company, at Talladega, Ala. They have an important contract pending which is expected to be closed in a short time, and have in hand numerous contracts of a miscellaneous character, embracing boilers, stacks and oil tanks.

General Machinery.

As soon as definite plans have been decided upon, the Dan River Power & Mfg. Company, Danville, Va., will be ready to receive bids for the entire equipment for their new power plant. They will develop the water power just above that city and erect a plant at a cost of about \$2,000,000. R. A. Schofield is treasurer.

The recently incorporated Cherokee Foundry & Machine Company are a reorganization of the King-Goodman Foundry & Machine Company, Cherokee, Kan., manufacturers of mining and smelting machinery, King gas and gasoline engines, King locomotives for underground haulage, and general founders and machinists. The officers are W. C. Turkington, president; G. W. Pye, vice-president and treasurer; Geo. W. Stewart, secretary and general manager; J. N. Riley, superintendent of construction, and U. S. King, consulting engineer.

The E. D. Jones & Sons Company, Pittsfield, Mass., manufacturers of paper making machinery and turbine water wheels, will build an addition, 75 x 150 feet, three stories, to their machine shop, which is to be used for a wood and erecting shop.

Of the machinery required by the H. N. Strait Mfg. Company of Kansas City, Kan., manufacturers of Monarch standard scales, cooperage machinery, hay presses, &c., for the additions they are to make to their plant, a good portion has been purchased from the American Tool Works of Cincinnati, New Haven Mfg. Company of New Haven, Conn., and Bement, Miles & Co., of Philadelphia. They are to add to their line the manufacture of Corliss engines, and for this purpose will build extensions to their machine shop and foundry, 100 x 210 feet each. Both buildings will be equipped throughout with new machinery, including electric traveling cranes of 20 tons capacity. The company have just completed the erection of a new boiler and engine room in which have been installed three 100 horse-power boilers and a 250 horse-power engine.

Last week the Executive Committee of the Louisiana Purchase Exposition Company executed a contract with the Westinghouse Electrical & Mfg. Company of Pittsburgh, to install an electric power plant on the World's Fair site with a generating capacity of 7500 kw. This is said to be one of the largest electrical contracts ever placed.

The Western Machine Tool Works, Holland, Mich., have been incorporated for the manufacture of iron working machinery by Nicholas Bosch, John Boda and Jennie Boda.

Morgan, Smith & Co. of York, Pa., and others intend to develop the water power of the Chattahoochee River at Randall's Shoals and at Bull Sluice, eight miles from Atlanta, Ga., estimated cost, \$1,500,000. While surveys for the power plant have been completed it will probably be some time before the work of erection will be commenced.

The machinery business of J. B. Doan & Co., 34 and 36 South Canal street, Chicago, has been sold to the O. L. Packard Machinery Company of Milwaukee, Wis., who have removed their Chicago branch office from 68 and 70 South Canal street to 34 and 36 South Canal street. The O. L. Packard Machinery Company have been in business over 40 years, building engines, boilers, steam pumps, a full line of wood and iron working machinery and machine supplies. Their increased facilities will enable them to carry a larger stock on hand in Chicago to supply the trade promptly.

The Acme Machine Works, Goldsboro, N. C., were organized and incorporated under the laws of the State of North Carolina

October 4, 1900, but did not commence running until February, 1901. The principal stockholder is J. J. Street, who is president and general manager, his sons, J. H. Street and W. E. Street, being respectively vice-president and secretary and treasurer. The works front 162 feet on Centre street and 140 feet on Ash street. The equipment throughout both machine shop and foundry is the very latest. Work done comprehends repairing of all kinds of machinery, locomotive repairing and rebuilding being a specialty. During the short time since commencing a dozen locomotives have been repaired and largely rebuilt. A stock of founders' and mill supplies is always carried.

The Vilter Mfg. Company, builders of refrigerating and ice making machinery, Corliss engines, &c., Milwaukee, Wis., have recently closed contracts for refrigerating machinery of capacities ranging from 15 to 150 tons for a large number of parties in numerous States, extending from Pennsylvania to New Mexico. They have also sold the Morris Paper Company, Morris, Ill., one 18 x 36 inch Corliss engine, and the Port Arthur Rice & Irrigation Company, Port Arthur, Texas, two 22 x 42 inch Corliss engines.

The Cincinnati Planer Company of Cincinnati, Ohio, again find it necessary to increase their facilities and are now letting the contract for a new addition, a one-story brick structure with basement, to be used exclusively for erecting purposes.

The Mansfield Engineering Company of Mansfield, Ohio, have been incorporated with a capital stock of \$100,000 by W. C. Lloyd, Mansfield; W. E. Lloyd, Zanesville; A. N. Lloyd, Muncie, Ind.; M. O. Haverstadt, George and Thomas Hall, and Henry Heer, all of Mansfield. W. C. Lloyd is president and treasurer of the company, George Hall vice-president, W. E. McE. Weldon secretary, Thomas Hall general manager, and Henry Heer superintendent. The company are a reorganization of the Century Machine & Mfg. Company. They have secured a bonus from the local Chamber of Commerce and will make important improvements to their plant. A new building, 195 x 75 feet, will be erected for storage purposes, and it will be equipped with a 15-ton crane. The stock room and tool room will be doubled. It is stated that during the year it is the intention to erect a power building and a blacksmith shop. Considerable new machinery is being installed in the machine shop, among the new tools being a Brown & Sharpe automatic gear cutter, a 10-foot boring mill, a Rand air compressor, and a number of pneumatic tools.

The American Sewer Pipe Company have purchased the old Black mill at East Akron, O., and are fitting it up as a machine shop, utilizing the machinery from the shop at Barberton, Ohio. They will manufacture their own sewer pipe machinery.

The Lumsden & Van Stone Company, Boston, Mass., manufacturers of pipes and fittings, will build a machine shop and foundry at First and L streets, South Boston.

The Willimantic Machine Company, Willimantic, Conn., have increased their capital stock to \$50,000. Mr. Atwood and others of the Atwood-Morrison Machine Company of Stonington have taken an interest in the company, which led to the erroneous report that the two concerns had effected a combination.

The Pittsburgh Machine Tool Company, Allegheny, Pa., manufacturers of iron and wood working tools, have made a shipment of 21 lathes to the new works of the British Westinghouse Electric Company, Limited, at Manchester, England.

The Pennsylvania Engineering Works, New Castle, Pa., have increased their capital stock from \$225,000 to \$500,000. The additional stock will not be issued at once, but as it may be needed to make necessary improvements and additions to the plant. The Pennsylvania Engineering Works are builders of blast furnace and steel plant construction, general machine and plate work and iron and steel cars.

The Hood Machine Company, Birmingham, Ala., have the machinery in their enlarged works in operation. They are shipping a 150-ton wheel press to Honduras, Central America, and are also building three Steward steam dumping hot pots, two of which are for the Republic Iron & Steel Company and the other for the Alabama Consolidated Coal & Iron Company, both of Birmingham.

Bridges and Buildings.

The Snead, Van Alstine, Meldrum Company, Louisville, Ky., iron and steel structural work, and ornamental iron work, have been reorganized, with increased capital stock and facilities, as the Snead Architectural Iron Works. The officers of the new company are Bernard Selligman, president and general manager; J. A. Holmboe, vice-president and chief engineer; Bernard Bernheim, first vice-president, and Thomas S. Snead, secretary and treasurer.

The New England Structural Company of Boston, Mass., have been awarded the contract for the steel superstructure of the Schell memorial bridge over the Connecticut River, at Northfield, Mass. The bridge was designed by Edward S. Shaw of 12 Pearl street, Boston, and is of the continuous truss type, consisting of a center span of 352 feet, and two end spans of 80 feet each.

Thomas Rodd, chief engineer of the Pennsylvania lines west of Pittsburgh, is receiving bids for the construction of a steel

warehouse, to be erected at New Grant street and Seventh avenue, Pittsburgh. The structure is to be steel frame, two stories high, 150 feet wide and 350 feet long.

Foundries.

Chas. Creighton & Son, New York City, iron and brass founders, who have been established since 1893, have incorporated under style of Charles Creighton Foundry Company, with a capital stock of \$100,000. It is the intention of the new company to considerably increase the present output of the plant, and later on they expect to make a number of improvements. The officers are: Charles Creighton, president; James H. Norris, vice-president and secretary, and John F. Allen, treasurer. Messrs. Norris and Allen are business manager and proprietor, respectively, of the John F. Allen Riveting Machine Works of New York City.

The Geo. H. Smith Steel Casting Company, Milwaukee, Wis., whose foundry was completely destroyed by fire February 19, are taking immediate steps to rebuild. As the boiler room and power plant were not totally destroyed it will be possible for them to be again in operation within a few weeks. They had only recently completed an addition to the foundry, their entire plant covering a space 150 x 300 feet. With the addition of a third 10-ton crane and other new and up to date machinery, which had been recently installed, they had a well equipped plant.

S. K. Lovewell & Co., Chelsea, Mass., will build a new brick foundry, 50 x 80 feet, at Clark avenue and Stockton street.

The Sharon Foundry Company applied for a charter at Harrisburg, Pa., March 3. They will enter into a working agreement with the Sharon Steel Company to furnish the latter with steel castings of all descriptions. A site has not yet been secured for the new plant, but it will be located near Wheatland.

The Battle Creek Iron Works Company, Limited, have secured a charter, authorizing a capital stock of \$600,000. As stated in these columns, they propose to establish a large foundry and machine shop at Battle Creek, Mich. They have purchased the entire business, patterns, patents and other property of the Hastings Iron Works, at Hastings, Mich., and will remove the equipment of that plant to Battle Creek as early as possible.

The Lima Steel Casting Company, Lima, Ohio, whose foundry was destroyed by fire February 23, will rebuild at once on a larger scale. They advise us that they have made no plans as yet for purchasing the new equipment that will be required.

A formal transfer of the foundry property of the East End Foundry Company on East Madison avenue, Cleveland, has been made to the Madison Avenue Foundry Company, recently incorporated.

The Dimmick Pipe Company, Birmingham, Ala., at their annual meeting, held February 6, elected the following officers: President, Fred. D. Dimmick; vice-president, James Bowron; general manager, John H. Goodapple; secretary, Miss Charlotte Blair, and treasurer, H. A. Bowron. The company declared a 6 per cent. dividend payable April 15. It was decided to erect a new brick office and also install a considerable amount of new labor saving machinery to increase the output. The domestic demand for pipe has for some time been so great that the company have not paid their usual attention to the foreign market. Among contracts for pipe recently filled are the following: One for Atlanta, Ga.; Philadelphia, Pa.; Atlantic City and Jersey City, N. J.; San Francisco and several other California cities; Lenton, Ind., and numerous other towns throughout the Central and Northwestern States. The company are beginning to book orders for delivery during the latter half of the year, the product engaged to be placed during the first half being nearly sufficient to take up the whole capacity of the works in the time.

Boilers, Engines, &c.

The San Bernardino Board of Trade, San Bernardino, Cal., have appointed a committee to investigate and report upon the cost, &c., for the construction of a municipal water plant for that city. W. L. Vestal, chairman of committee, advises us that they would be pleased to receive catalogues and data from manufacturers of water works plants.

The Hamden Corundrum Wheel Company, Springfield, Mass., whose plant was recently destroyed by fire, are in the market for a 100 horse-power engine and 150 horse-power boiler. Plans for rebuilding the plant are being prepared and as soon as they are completed work of erection will be commenced.

The Uncas Paper Company, Norwich, Conn., are to enlarge their plant at Thamesville, the equipment for which, including new boilers and engines, has been purchased. The additions will consist of two storehouses, 75 x 80 feet each, one story, of heavy mill construction, boiler house 143 x 67 feet, and engine room 21 x 31 feet, with steel trussed roof.

Francis Brothers & Jellott, Incorporated, Philadelphia, Pa., are to install two high pressure boilers, and a power, heating and lighting plant, to cost \$38,000, in the new building for the Pittsburgh Plate Glass Company, corner of Eleventh and Arch streets.

The Miller Gas Engine Company of Springfield, Ohio, whose plant was destroyed in the recent disastrous fire in that city, have purchased three acres of land and will rebuild in that

city. The main building will be 300 x 72 feet, one story high, and it will be covered by an electric traveling crane. It is the intention to have the plant equipped and in full operation by June 1.

The Village Council of Londonville, Ohio, are advertising for proposals on a 2,000,000 gallon pumping engine and other necessary equipment for a water works pumping station.

The Sandusky, Ohio, water works trustees have closed a contract for the lease and ultimate purchase of a 10,000,000 gallon pumping engine with the Holly Mfg. Company, Lockport, N. Y.

M. A. Bradley of Cleveland is having plans prepared for another large power block, 150 x 90 feet and five stories high, this being the twelfth power block he has built in the heart of Cleveland. The buildings are nearly all heated and furnished with power and light from a central power station located in one of the buildings. Additional equipment will be installed to take care of the new building.

Barber Brothers of Delaware, Ohio, have secured a franchise for an electric lighting and steam heating system in Fostoria, Ohio. They will build a plant as soon as possible.

The Elyria Gas & Electric Light Company, Elyria, Ohio, have secured a franchise for furnishing steam heat throughout the city, and will commence work on the new plant as soon as weather permits.

The American Tin Plate Company have placed an order with the Bass Foundry & Machine Company of Fort Wayne, Ind., for an engine to be installed in the Laughlin Works at Martin's Ferry, Ohio. The engine will be a cross compound Corliss condensing engine, and will develop 2000 horse-power. The high pressure cylinder will be 28 inches, and the low pressure will be 54 inches, with 60-inch stroke. The engine is to replace an old engine which is to be put out of service on account of being worn out.

Charles T. Lehman, Birmingham, Ala., who handles both new and second hand machinery, states that his business has increased very considerably since he entered the new building he occupies at 1901 Powell avenue about a year ago. He is agent for L. Flory & Co., manufacturers of hoisting engines, Bangor, Pa.; Marsh Steam Pump Company, Battle Creek, Mich., and the Nagle Engine & Boiler Works, Erie, Pa. He lately sold an 18 x 24 inch double cylinder hoisting engine to the Little Cahaba Coal Company, Coaleman, Ala.

Fires.

The large plant of the J. B. Owens Pottery Company, at Zanesville, Ohio, was destroyed by fire March 2, causing a loss of about \$300,000, with insurance of about half that amount.

The foundry of the Glauber Brass Mfg. Company, at Cleveland, Ohio, was destroyed by fire March 2. The loss is about \$50,000.

The planing mill of the Lawrence County Lumber Company, at New Castle, Pa., was destroyed by fire March 2, causing a loss of \$20,000. It is probable that the plant will at once be rebuilt.

The saw mill of the D. R. Wingate Lumber Company, at Orange, Texas, was destroyed by fire last week. Loss is about \$80,000, partly covered by insurance.

Miscellaneous.

The Marcy Mfg. Company, Bluffton, Ind., manufacturers of Red Cross windmills, tanks, pumps and water works appliances, have bought a plot of ground, 79 x 140 feet, adjoining their plant, upon which they will build a large brick addition that will double the capacity of their molding room. The machine shop will also be extended. The company have recently completed a building to be used as a galvanizing department. The purchase of this tract of land gives them a large area which they expect to eventually cover with buildings.

The Peru Plow & Wheel Company, Peru, Ill., have increased their capital stock from \$225,000 to \$400,000.

The Schultz Belting Company, St. Louis, Mo., have increased their capital stock from \$300,000 to \$360,000, about \$50,000 of which will be used in improving and enlarging the plant. About 50,000 square feet of floor space is being added, increasing the capacity 2½ times, and new engines, boilers and machinery are being installed.

The Moffett Vehicle Bearing Company have established new works at Saginaw, Mich., for the manufacture of their roller bearings. The plant is located on Niagara street, is 160 x 60 feet, two stories and basement, and is fully equipped with Brown & Sharpe machine tools and appliances.

The Conklin Tin Plate & Metal Company, recently incorporated by Charles A. Conklin and John N. Goddard, have opened stores in both Atlanta and Savannah, Ga., for the sale of roofing tin plate, sheet metals, tinner's and roofers' supplies generally.

The Chase Rolling Mill Company, Waterbury, Conn., brass manufacturers, have increased their capital stock from \$500,000 to \$800,000.

The C. E. Wenzel Company of 313 Market street, Newark, N. J., recently incorporated, are the successors to C. E. Wenzel & Co. This firm have been engaged in the metal pattern business for over two years.

The Iron and Metal Trades.

The floods and storms have been interfering again with both production and consumption at a time when any delay is very seriously annoying. They threaten to prolong the shortage of material beyond the spring months, and are making more and more difficult the endeavors of important interests to accumulate finished goods in anticipation of the usual spring trade.

The anxiety with reference to the supply of Foundry Iron for the second half of the year is subsiding somewhat, and some of the sellers have been placing comparatively little iron, after the tremendous February rush. Others, however, have booked some very large orders. Among these we note about 25,000 tons, taken by Pipe foundries, locomotive works, car builders and others, in one important case the deliveries going over the first quarter of next year. We note also the sale of 10,000 tons of Bessemer Pig by a furnace in the Central West, which usually runs on Foundry and Mill Iron.

Some figures which have come to our notice have an important bearing on the situation. The Associated Southern furnace interests had on their books on March 1 a little over 800,000 tons of orders for Foundry Iron, and had, counting production at the January rate, available for the market a little under 300,000 tons for the balance of the year 1902. But there will be blown in remodeled and new furnaces, whose product for the balance of the year is conservatively estimated at 175,000 tons. There are still to be marketed, therefore, during the balance of the year about 475,000 tons of Foundry and Forge Iron, by the Associated Southern furnaces, assuming, of course, that the January rate of production be continued throughout the year as the normal rate. Since the production of Foundry and Mill grades in the whole of the United States during the years 1900 and 1901 was very close to 4,500,000 tons per annum, it will be noted that the Associated Southern furnaces alone still have unsold a quantity representing fully 10 per cent. of the average of the past two years. Of course, it is probable that this year's consumption will be considerably larger than the rate of 1900 and 1901, but the fact remains that there is still a reserve in slight larger than the majority in the trade suspect.

As for the scarcity of Structural Material, the point is made that it is more apparent than real. Formerly the bridge and structural shops drew upon many mills for their supply, and by distributing their orders were able to arrange for simultaneous deliveries of the different sizes. Since the consolidation it has not been quite so readily arranged, and it has often happened that work could not be completed because 10 per cent. or less of the material in the shape of particular sizes or sections was not ready for delivery.

We do not hear of any further importations of any consequence either in Pig Iron, Billets or Finished Material.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type Declines in Italics.

	Mar. 6, 1902.	Feb. 26, 1902.	Feb. 5, 1902.	Mar. 6, 1901.
PIG IRON:				
Foundry Pig No. 2, Standard Philadelphia	\$18.25	\$17.75	\$17.00	\$15.25
Foundry Pig No. 2, Southern, Cincinnati	15.00	14.75	14.75	13.75
Foundry Pig No. 2, Local, Chicago		17.00	16.00	15.00
Bessemer Pig, Pittsburgh	17.25	17.25	16.75	15.50
Gray Forge, Pittsburgh	16.75	16.75	16.00	14.00
Lake Superior Charcoal, Chicago		20.50	20.00	17.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	31.00	30.00	28.50	21.50
Steel Billets, Philadelphia	32.50	32.00	29.50	22.00
Steel Billets, Chicago				23.00
Wire Rods, Pittsburgh	35.75	35.50	35.00	35.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	26.00
Spikes, Tidewater	2.00	2.00	2.00	1.50
Splice Bars, Tidewater	1.60	1.60	1.60	1.30
OLD MATERIAL:				
O. Steel Rails, Chicago		15.50	15.00	12.50
O. Steel Rails, Philadelphia	19.25	18.75	19.00	16.00
O. Iron Rails, Chicago		23.00	22.00	18.50
O. Iron Rails, Philadelphia	22.00	21.50	21.00	18.00
O. Car Wheels, Chicago		18.00	16.50	16.50
O. Car Wheels, Philadelphia	17.25	17.00	17.00	16.50
Heavy Steel Scrap, Chicago		14.50	14.00	12.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.82	1.72	1.67	1.40
Common Iron Bars, Chicago		1.75	1.75	1.50
Common Iron Bars, Pittsburgh	1.70	1.60	1.60	1.40
Steel Bars, Tidewater	1.75	1.67	1.62	1.45
Steel Bars, Pittsburgh	1.60	1.55	1.50	1.35
Tank Plates, Tidewater	1.78	1.78	1.78	1.55
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.40
Beams, Tidewater	1.85	1.75	1.75	1.63
Beams, Pittsburgh	1.70	1.60	1.60	1.50
Angles, Tidewater	1.75	1.75	1.75	1.53
Angles, Pittsburgh	1.60	1.60	1.60	1.40
Skelp, Grooved Iron, Pittsburgh	1.80	1.80	1.75	1.70
Skelp, Sheared Iron, Pittsburgh	1.85	1.80	1.80	1.75
Sheets, No. 27, Pittsburgh	3.00	3.00	3.00	3.05
Barb Wire, f.o.b. Pittsburgh	2.90	2.90	2.90	2.90
Wire Nails, f.o.b. Pittsburgh	2.05	2.05	2.05	2.30
Cut Nails, Mill	1.95	1.95	1.95	2.05
METALS:				
Copper, New York	13.12½	12.37½	12.50	17.00
Spelter, St. Louis	4.10	4.15	3.90	3.80
Lead, New York	4.10	4.10	4.10	4.37½
Lead, St. Louis	4.05	4.05	4.00	4.22½
Tin, New York	25.50	25.25	24.25	26.25
Antimony, Hallett, New York	8.00	8.00	8.00	9.25
Nickel, New York	50.00	50.00	50.00	55.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	4.19	4.19	4.19	4.19

Philadelphia.

FORREST BUILDING, March 4, 1902.

Conditions in the iron trade have become more complicated than ever. Floods and storms and blockades are reported on all sides, and it is feared that the shortage of material will be worse before it can be better. With anything like a fair chance it would be tolerably safe to predict on an early resumption of normal conditions, but with setback after setback recovery has been out of the question thus far. Nevertheless it is believed that the worst that can happen has happened, and in the course of the month substantial evidences of relief will be forthcoming. For the present, however, everything is at sixes and sevens. Quotations on such articles as Pig Iron, Billets, Structural Material and Old Material are all more or less problematical. Prices are not everything, however; the point is to find the stuff and, that accomplished, prices are of secondary importance. Sellers make no quotations except in a tentative way, and whether orders will be taken or not depends altogether upon the circumstances in each individual case. Furnace owners all claim to be taking care of their trade, but if they are doing it it is curious to see so many consumers going around begging for the privilege of buying. With a production of very close to 1,500,000 tons per month, and the furnaces in operation

doing a long way below their best work, it is fair to assume that with normal supplies and normal facilities for transportation the output could be easily increased 10 per cent. without blowing in a single furnace additional; hence it is believed that by midsummer production will be at the rate of 19,000,000 tons per annum, or very close thereto. It is not impossible that consumption may also increase, but an unbiased survey of the situation leads to the impression that supply will not be so much behind the demand as it is to-day. Still, it is not what conditions may be four or six months hence that is causing the anxiety, but what shall be done during March and April. This question cannot be easily answered, as the shortage at the moment is too palpable to be denied, while the means of relief are certainly far from being satisfactory. Something is being done in foreign Pig. One local foundry is bringing out several thousand tons, and other lots are under negotiation, but prices abroad are advancing and spot lots in Europe have been pretty well cleaned up, so that so far as immediate relief is concerned prospects are not encouraging. How far prices will be affected it is impossible to say, but it will depend a good deal on how long it will take to recover from the storm damages. It must also be remembered that if production is retarded consumption will be similarly affected, so that to some extent one will offset the other. For the present, however, it is quite likely that metal for prompt shipment will command high prices, and even deferred shipments will be hard to keep down if short deliveries make further advances. Southern ironmasters are putting up a vigorous fight against it, but there are some signs of weariness, and it would not be much of a surprise to hear that for the time being they have suspended quotations entirely.

Pig Iron.—There is very little use in quoting prices, as there is no market in the ordinary sense of the word. The old adage that "you may take a horse to the water, but you cannot make him drink" applies with equal force to the price of Pig Iron. A maker may have a little Iron to spare, but he controls the price and no one else can make him change it unless he feels like it. What one seller will quote is no criterion for another, and, as a matter of fact, buyers are not disposed to haggle about price providing they can get material quickly. When it comes to later deliveries, say covering the last half of the year, there is a somewhat different feeling. Buyers have their own ideas as well as sellers have theirs, and the question of making engagements for long deliveries is a question open to discussion. The continued strength of the market for the first half of the year has had a tendency to strengthen the feeling in regard to later dates, however, and while the Southern Ironmasters have not withdrawn from the market entirely, they are certainly less free in their offers than they were a week or ten days ago. It may be said, indeed, that the feeling all around is considerably stronger than it was a week ago, and while it is impossible to say how much stronger it is, or what advances have been made, it is not at all unlikely that it may average nearly \$1 per ton. A good deal, of course, depends on deliveries, but those who want March shipments probably consider themselves fortunate if they get off on the terms named. There is a feeling in the air that before the middle of the month the situation will have developed to an extent which will permit fairly good forecasts being made. If the market is going higher, how much, and how long can higher prices be maintained? For the present the range would be about as follows for city and nearby deliveries:

	Deliveries to July.	Deliveries July to December.
No. 1 X. Foundry.....	\$19.25 to \$20.00	\$18.50 to \$19.00
No. 2 X. Foundry.....	18.50 to 19.00	17.00 to 17.50
No. 2 Plain.....	17.75 to 18.25	16.50 to 17.00
Standard Gray Forge.....	17.50 to 18.00	16.75 to 17.25
Ordinary Gray Forge.....	16.75 to 17.00	16.50 to 17.00
Basic (Chilled).....	18.00 to 18.50	18.00 to 18.25
Bessemer.....	19.75 to 20.00	19.00 to 19.50

Billets.—Practically there is no Steel for sale. Once in a while a chance lot may be picked up at about \$32.50, but it is not so much a question of price as it is to get the material. Foreign Steel is equally scarce for prompt shipments and prices are about the same as for Ameri-

can Steel. Western mills report that they are full of work up to the end of the year and have, therefore, nothing to offer.

Plates.—There is a fair demand, and mills have plenty of work on their books and good prospects for continuance. The capacity for production is probably a little larger than in most other lines, consequently the pressure for deliveries is less urgent, but there is a heavy consumption, and if other material could be had promptly, it would be a considerable help to the Plate trade. Meanwhile there is no room for complaint, and prices are strong, as last quoted for Philadelphia and nearby deliveries, as follows: Universals, 1.75c. to 1.80c.; Sheared, 1.75c. to 1.80c.; Flange, 1.85c. to 1.95c.; Fire Box, 1.95c. to 2.05c.; Marine, 1.95c. to 2.05c.

Structural Material.—It is merely a repetition to say that the mills are crowded with work and are totally unable to make deliveries in anything like reasonable time. This report will probably have to be reiterated week by week for a long time to come, as there is hardly a chance for catching up for months to come. Prices are supposed to be as follows, but \$4 to \$6 per ton more is paid to get anything like reasonably prompt attention: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

Bars.—The demand is fair, but in anticipation of the advance which was made on the first of the month, there will probably be less doing for a little while to come. Specifications are coming in quite freely, however, and mills find it as much as they can do to make deliveries promptly. Some damage and delay have been caused by the floods, but it is believed that the worst is over. Prices for this vicinity are now quoted as follows: Iron Bars, 1.82c. to 1.85c.; Steel Bars, scarce 1.75c. to 1.85c.

Sheets.—There is a very good demand, and the interruption caused by the floods is causing some delay, but full time will probably be resumed before the end of the week. Prices for carload lots and upward of ordinary Sheets would be about as follows, and 1.10c. to 2.10c. more for best qualities—viz.: No. 10, 2.30c. to 2.40c.; No. 14, 2.60c.; Nos. 16 and 17, 3c.; Nos. 18-21, 3.10c.; Nos. 26, 27, 3.30c. to 3.40c.; No. 28, 3.50c.

Old Material.—There is an abnormal scarcity of material, and prices are too uncertain to be given with exactness, but everything is higher and consumers willing to pay moderate advances when they can get deliveries with reasonable promptness. The range of bids and offers would be about as follows for deliveries in buyers' yards: Low Phosphorus Scrap, \$24 to \$25; Choice Railroad Scrap, \$22 to \$23; Light, Ordinary, \$13 to \$14; Light, Forge, \$15 to \$16; Machinery Cast, \$15.50 to \$16; Heavy Steel, \$19.25 to \$20; Old Steel Rails, short lengths, \$19.25 to \$20; Iron Rails, old, \$22 to \$23; Wrought Turnings, \$13.75 to \$14; Choice Heavy, \$14.25 to \$14.50; Cast Borings, \$8 to \$8.50; Old Car Wheels, \$17.25 to \$17.50; Iron Axles, \$25 to \$25.50.

St. Louis.

CHEMICAL BUILDING, March 5, 1902.—(By Telegraph.)

Pig Iron.—Sales in the Pig Iron market the past week are of somewhat lighter order, but the inquiry for quick Iron continues to be quite pronounced, with offerings light. All of the Southern furnaces are practically sold up for the first half, and many are heavily booked beyond that period. It is thought with the advent of milder and better weather that many furnaces can then greatly increase their production, and it will also mark the time of the commencement of operations of several which are now shut down and some that are new in the field. The severe floods in many sections of the South have greatly hampered plants, and shipments have been delayed. Prices are on a firm basis, and we quote for cash, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry.....	\$15.75 to \$16.00
Southern, No. 2 Foundry.....	15.25 to 15.50
Southern, No. 3 Foundry.....	14.75 to 15.00
Southern, No. 4 Foundry.....	14.25 to 14.50
No. 1 Soft.....	15.75 to 16.00
No. 2 Soft.....	15.25 to 15.50
Gray Forge.....	14.25 to 14.50

Bars.—The market for Iron and Steel Bars has undergone a change since our last report, and the price

for Iron Bars has been advanced by the mills \$2 per ton, making the price at St. Louis in carload lots 1.90c. Jobbers report continuance of the very good and active conditions which have been prevailing, but make no announcement of change in their prices. We quote from mills Iron Bars at 1.90c.; Steel Bars at 1.90c. to 2c. Jobbers quote Iron Bars at 2c. and Steel Bars at 2.10c., full extras.

Rails and Track Supplies.—No new comments can be made on the condition of the market for Rails and Track Supplies, and the same reports of very large and urgent business in all departments are to be noted. We quote: Splice Bars, 1.75c. to 1.95c.; Bolts, Square Nuts, 2.75c. to 2.90c., with Hexagon Nuts, 2.90c. to 2.95c.; Spikes, 2c. to 2½c.

Sheets.—Business in the market for Sheets of all grades is said to be of large proportions, and prices are on a firm basis. Jobbers quote Stove Pipe size, No. 27, at 3.60c. to 3.65c., and Galvanized Sheets, 70 to 70 and 5 off in round lots.

Angles and Channels.—Trade in the market for Small Angles and Channels is said by the jobbers to be holding well up to recent activity and strength. Firmness rules in the price-list, and for materials of this class 2.30c., base, is quoted.

Pig Lead.—The Pig Lead market has lapsed into a quiet condition, and prices hold firm and steady. Chemical is quoted at 4.05c., and Desilverized at the same figure.

Spelter.—The demand in the market for Spelter has materially lessened, and at this time very quiet conditions rule. Quotation of 4.10c. to 4.12½c. covers the price movement.

Cincinnati.

FIFTH AND MAIN STS., March 5, 1902.—(By Telegraph.)

There is but little if any particular change in the Pig Iron market, from the conditions of a week ago; there is an easier feeling about the loss of any of the strength which has characterized the situation for some time. The conservative attitude of furnace managers in regard to prices, taken in conjunction with the evidence that there is going to be enough Pig Iron to supply all immediate needs, had a quieting effect on the market. The amount of Pig Iron sold during the past week was comparatively small, and sellers are expressing themselves as glad of the change to make it easy for a short season. The amount of inquiry and especially for late deliveries has also very materially decreased. Prices are stationary. There are a few sellers asking and doing some little selling on basis as high as \$13, Birmingham, for No. 2, but the real mark is on the basis of \$12, with the exceptional grades at \$12.50. The present lull is generally expected to last a week or two at least. Freight rate from Hanging Rock district is \$1.10 and from Birmingham \$2.75. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$15.25 to \$15.75
Southern Coke, No. 2.....	14.75 to 15.25
Southern Coke, No. 3.....	14.25 to 14.75
Southern Coke, No. 4.....	13.75 to 14.25
Southern Coke, No. 1 Soft.....	15.25 to 15.75
Southern Coke, No. 2 Soft.....	14.75 to 15.25
Southern Coke, Gray Forge.....	13.75 to 14.25
Southern Coke, Mottled.....	13.75 to 14.25
Ohio Silvery, No. 1.....	17.75 to 18.25
Ohio Silvery, No. 2.....	17.25 to 17.75
Lake Superior Coke, No. 1.....	18.10 to 18.35
Lake Superior Coke, No. 2.....	17.60 to 17.85
Lake Superior Coke, No. 3.....	16.35 to 16.85
Southern Basic.....	to 16.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades.....	\$19.25 to \$20.25
Standard Southern Car Wheel, No. 2.....	18.75 to 19.75
Lake Superior Car Wheel and Malleable.....	20.00 to 21.00

Plates and Bars.—The market is strong, active and unchanged. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.72c., with half extras; same in small lots, 1.85c. to 1.90c., with full extras; Steel Bars, in carload lots, 1.65c. to 1.70c., with half extras; same in small lots, 1.85c. to 1.90c., with full extras; Angles, in carload lots, 2c.; Plates, ¼-inch and heavier, 1.90c. to 2c.; 3-16-inch, 2.10c.; Sheets, No. 16, 2.90c. to 3c.

Cleveland.

CLEVELAND, OHIO, March 4, 1902.

Iron Ore.—The lake market continues to be the interesting feature of the Iron Ore trade. A summary of the situation reveals the fact that about all of the smaller shippers have covered all of their season's movement with tonnage, but the bigger shippers have done nothing so far looking toward making contracts. The smaller shippers have taken tonnage for the movement of something over 4,000,000 tons of Iron Ore, which, under ordinary circumstances, would be equivalent to the absolute making of the season's rate of carriage. This year that result is decidedly in doubt, for the leading parties both in production and transportation have held aloof and are demanding a rate of 75c. between Duluth and Ohio ports, as against 80c. paid by all of the smaller shippers so far. The principal factors seem not at all to be anxious to take up the question of rates or contracts, but will leave that for later in the season. About all of the Ore has been sold, according to prevalent reports, that it is expected will be moved down the lakes this year. This being the case, the hesitancy about making provision for the movement of the Ore is not very easily explained, unless it should be upon the basis of uncertainty as to the amount of Ore which will be left on the docks in the spring and which may affect the amount the producers will have to move in their own tonnage. The prices obtained for the Ore are \$4.25 for Bessemer old range, \$3.25 for non-Bessemer old range and Bessemer Mesaba and \$2.75 for non-Bessemer Mesaba.

Pig Iron.—The market this week has been very active, and in the Foundry grades especially there is considerable difficulty being experienced in finding material. The furnaces are now selling for practically only the fourth quarter, everything up to that time having been sold up. On the sales which are being made in the future the price holds at \$17.50 and \$17, Valley furnace, for Nos. 1 and 2, respectively. Many reports are being heard of sales having been made at other prices, but these are extraordinary quotations which speak of the anxiety in some quarters to obtain material sooner than the open market can afford it. In fact, it now seems as if the producers of Foundry Iron might obtain their own price for the product on any material available for immediate shipment. Some quotations have gone as high as \$18 and \$18.50 for No. 2 in the Valley. The production is not as brisk as might be hoped, since the furnaces are still obtaining their Coke in a hand to mouth fashion. Most of the stacks are in blast, but the furnacemen are unable to collect any stock of Coke ahead and are daily dependent upon the supply of fuel which the railroads can furnish them. Southern Foundry Iron is also up some, being quoted now at \$13 for No. 2, Birmingham. The recent heavy sale of Bessemer closed the transactions for the time being. In that deal about all of the Iron which the Bessemer Association has for distribution during the third quarter was sold up, and no sales have since been made anticipating any business into the fourth quarter. The price holds nominally at \$16 in the Valley. Few, if any, of the Basic producers have any material for sale until the fourth quarter, and the buying has not gone that far. The quotation is \$16 in the Valley.

Finished Material.—The producers of Bars have made an advance of \$2 a ton in the price of both the Iron and Steel product during the week. This brings the quotation of Bessemer Steel Bars up to 1.60c., Pittsburgh, and 1.70c. for Open Hearth Steel Bars and Iron Bars, also based upon Pittsburgh. Following this advance there was very heavy buying of material, and the mills report that their output is sold very much ahead of production. This buying was undoubtedly the result of the general belief that the advance in prices implied that many of the big mills are sold up so far ahead that they were warranted in making the advance to put a check upon the business. The mills are, of course, pretty well sold up, but this interpretation is hardly warrantable. Structural Steel is not offered now much before December 1. The big mills are making this statement, with the reservation, however, that they still have

some intervening tonnage not covered, which they wish to retain free to meet some emergencies which are sure to arise. The mills are endeavoring to discourage speculation, and therefore to prevent the material which they are producing going into store. The store sales, however, seem to indicate that there is no immediate need for this action. The dealers are not only selling what they get in, but are being importuned to make deliveries on former sales. The indication therefore is that the consumption is very large. Store prices range from 2.25c. to 2.75c. or 3c., with mill sales holding at 1.70c. Plates are still selling for 1.70c., with deliveries on Sheared Plate being offered within a month, and with shipments on Universal Mill and other sales offered inside of two months. Billets and Sheet Bars are very scarce, and there is a great need for them. Some users of Sheet Bars are suffering for material, and the market affords no relief. Those who need the material are dependent entirely upon the foreign supply, and the reports are that arrangements are being made for the importation of considerable material. The trading has not been heavy enough in the last few months to warrant a quotation, and the foreign price is unknown here. The Sheet trade is a little quiet just now. This is the off season, and the buying for spring delivery has not been started. The evidences are, however, that there will be an enormous amount of business later on. The store quotation is still 3.45c. to 3.60c. for No. 27. The price of Wrought Pipe has been marked up a little during the week, but the spring buying has hardly set in; when it does it is expected there will be an enormous amount of business done.

Old Material.—The Scrap trade this week has been very heavy, the amount of material sold being extraordinary. Some delay is being experienced in getting the Scrap moved due to the railroad conditions. The market is represented by the following quotations: No. 1 Wrought Scrap, \$18 net; Cast Borings, \$8 gross; Wrought Turnings, \$13.75 gross; Cast Scrap, \$14 net; Old Iron Rails, \$22 gross; Old Iron Axles, \$22 net; Steel Rails, \$17 gross; Old Car Wheels, \$17 gross.

Birmingham.

BIRMINGHAM, ALA., March 3, 1902.

It is a difficult thing to prognosticate concerning the market. It is a difficult thing to diagnose it correctly. The usual landmarks that guide to correct conclusions are swept away. The market has the bit in its teeth and will not submit to control. It is without doubt an unprecedented condition of affairs. One anomaly of the market is that three of the popular grades of Iron are bringing the same price—viz.: No. 2 Foundry, No. 3 Foundry and Gray Forge. Each one of these grades sold at \$12. Just why this is so results from the fact that for desirable deliveries they are in scant supply. Secondly, the Mill grades are in active demand, and price does not stand in the way of taking when they can be obtained. The market is still quoted on the basis of \$12 for No. 2 Foundry, and the larger interests assert their adherence to this value. But one interest reported the placing of fine orders for Gray Forge at \$12, and a refusal of an order for a 500-ton lot at that price. The furnace practice has greatly improved, and every effort is being made to the turning out of the better grades. One order for 1000 tons of No. 2 Foundry at \$12.50, September delivery, was declined by a leading interest, which prefers to keep in position to supply its regular trade at market price at delivery time. The majority of the furnace interests will be "put to it" to make their deliveries up to and including September. The sales during the month of February for deliveries scattered over the year to December were quite large. A prominent official in a leading interest in close touch with the market estimates the sales during the last half of the month at 200,000 tons. For the entire month well posted parties put them at 300,000 tons. Never have we had a more constantly active market, and never has there, previous to the present activity, been such uniform opposition to lifting the market above the basis of a fair business profit. Anything that has a specu-

lative appearance is at once discouraged and the order declined, while the legitimate consumptive trade is taken care of without squeezing it. Some interests are declining, for the present, to quote prices on any grade for any delivery, having their order books filled to the limit of prudence for acceptable deliveries. Sales of No. 2 Foundry were made at \$12 when sellers knew they could get \$13 "for the asking."

The owners of the Trussville Furnace have lately acquired the Graves Coal mines, and will build a Coke plant to supply their furnace. They are now contracting for machinery to put their plant in first-class condition. The Republic Company have been delayed in installing their new furnace, but expect to have it in operation by April. By that time 400 new Coke ovens will be completed and ready to fire. They will then have 1000 Coke ovens in one body. This is claimed to be the largest single Coke plant extant.

The Alabama Steel & Mine Company have made an important purchase of Ore lands in the Gadsden district, covering 5000 acres. The price paid has not leaked out yet. It is common gossip that more is wanted. Last week the purchase of a large body of Coal lands by them was reported. While the principals will neither confirm nor deny the reports concerning their intentions, one can read "between the lines" that their action betokens a new furnace plant and perhaps a new Steel mill, so that they will own and control the material in their business "from the ground up." It is said their investments will cover \$1,000,000. The charter granted by the city to private individuals to build an electric railway has been transferred to the Steel Cities Electric Railway Company. It is announced that 400 tons of Rails have been ordered, and that \$700,000 in cash is in hand to further it to completion. It will connect the towns and hamlets in the district with each other and greatly add to the facilities already existing for convenient access to all parts of the district. The Charlotte Supply Company of Charlotte, N. C., recognizing the growing importance of this district, have established a house here to furnish supplies to cotton mills.

Some figures were given last week concerning tonnage handled by the car association. Of the entire amount 58 per cent. came from the Birmingham district. And this percentage is more likely to increase than decrease. The Coal output for 1901, as officially given, was 8,949,917 tons, an increase over 1900 of 676,354 tons. Of the total amount 6,887,012 tons was "run of the mine." The number of miners employed was 10,324, and the entire number employed in connection with mining was 14,294. About three-fifths of the total output was furnished by this county. If labor can be obtained the output this year will be still greater. Efficient mining labor is in free demand.

There is still a scarcity of Coke, and all that can be had is readily absorbed at \$3 per ton at the ovens. The same conditions as to Ore prevail as was reported last week, and the weather we have had of late gives no encouragement for improved conditions. In Finished Iron the rolling mills are taxed beyond available capacity to supply the demand. Some labor has been imported of late from the West to supply the deficiency, and more is being sought. There is room for a fresh regiment. Contract work of every description is active. If the number of orders for engines taken by one firm here was given it would tax the credulity of many of your readers. One of our shops is building some large wheat pits for Texas, and has other important contracts in sight. Another firm have a contract for the blowing engine for the Tuscaloosa Furnace, also for the power to be added to the electric light company here and for sugar machinery to go to Cuba. The boiler shops are full of work also. In short, this is a busy hive of industry. Improvements are constantly being made. A new hospital is being contracted for, as is also a medical college. Then a grand Masonic Temple will follow, the lot on which it is to be built having been purchased. The large buildings previously mentioned are getting well under way. One of them will require 50 carloads of tiling. Then the Ensley people are moving for a rolling mill, and they will get it. In short, the entire district seems to be "on the move," and any enterprise that gives the least promise

is encouraged and helped. Some important deals in real estate have been made at enhanced values and are being negotiated. One would find it difficult to paint the prospects with too roseate a hue. An accident at the Steel mill caused a temporary suspension of operations, but it will occasion no serious delay. Billets have been sold at \$28, and more business was offered than was accepted, being greatly beyond ability to supply.

Pittsburgh.

(By Mail.)

HAMILTON BUILDING, March 4, 1902.

Output of Iron and Steel of all kinds was sadly interfered with last week by the highest flood which Pittsburgh has had since 1884. The Allegheny and Monongahela rivers had about 32 feet 4 inches of water, and large plants owned by the Carnegie Steel Company, American Steel & Wire Company, Crucible Steel Company, Jones & Laughlins and other concerns, which line both banks of above rivers, and also manufacturing plants located along the Ohio River, were submerged in from 3 to 5 feet of water, and an enormous amount of damage has been done. The flood receded rapidly, and the mills are again getting in shape, and by the end of this week will be running full. Many of the largest plants were shut down tight for three or four days, and machinery was badly damaged. More than this, the flood has made the car situation a great deal worse, and the relief promised by the railroads to materialize about March 1 will not come. Reports from large Coke operators and other sources show that February was the worst month yet as regards car shortage, but it can be stated that the last week in that month was slightly better than the preceding three weeks. It will take a long time yet before the car situation shows permanent improvement, as all the railroads entering Pittsburgh sadly lack motive power and yards. The Wabash Railroad, which will come into Pittsburgh in about a year, will afford some relief. The situation in the Iron trade in the past few days has been somewhat quiet. This has been partly due to the fact that consumers of material are pretty well covered for some months ahead, while the furnaces and mills have their output sold and are running to utmost capacity on contracts. Some of the larger Steel concerns rolling Billets, Structural Material, Plates and Bars are practically out of the market as sellers for the next four to six months. There never was a time in the history of the Iron trade when the mills and furnaces had as much material on their books as at the present time. There have been no changes in prices in the past week, but the market on everything is extremely firm, and the scarcity of material is as great as ever. We are informed that some Bessemer Iron has been sold for third and fourth quarters at \$16.50 to \$16.75 at furnace. Some of the furnaces that have no Iron to spare this side of July are holding second half Iron at \$17 at furnace. There is not much doing in Steel, as the mills have none to spare. Some small lots of Billets held by outside parties are being sold on the basis of \$31 to \$32, delivered. There is really no market for Steel. Coke, for prompt shipment, is scarce, and Furnace has sold as high as \$3 a ton.

Muck Bar.—There is a good deal of inquiry, and Muck Bar for prompt shipment is reported as being scarce. We quote the market at \$31 to \$31.50, delivered, for Standard grades. A sale of 500 tons, and another of 1500 tons, are reported at about \$30.50 to \$31, delivered buyer's mill.

Ferromanganese.—No change in prices. Domestic is held at \$52.50 and Foreign at about \$50, delivered.

Spelter.—Consumers report a good deal of trouble in getting prompt deliveries of best grades, and the market is firm. We quote Western grades at 4.10c. to 4.15c., Pittsburgh.

Rails.—The Ohio works of the National Steel Company, at Youngstown, will go on Rails shortly after April 1. This is done in order to help out the United States Steel Corporation on the heavy contracts for Rails which they have booked. We quote at \$28, at

mill, and note that there is a great scarcity of Light Rails, and they are bringing very high prices. Sixteen pound Rails are said to have sold as high as \$45 to \$47 a ton, delivered.

Rods.—Some of the largest mills are sold up, and there is a scarcity of Rods for prompt shipment. We quote at \$35 to \$35.50, at maker's mill.

Plates.—The volume of business is improving, and the Plate mills are said to be better filled up than for some time. However, tonnage in Plates is not as large yet by any means as other lines of Finished stuff. Deliveries of Plates can usually be had in one or two weeks after placing the order. No change in official prices, and we quote: Tank Plate, $\frac{1}{4}$ inch thick and up to 100 inches in width, 1.60c. at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price to 3c. Plate more than 100 inches wide 5c. extra per 100 lbs. Plate 3-16 inch in thickness, \$2 extra; gauges Nos. 7 and 8, \$3 extra; No. 9, \$5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms, net cash in 30 days. Small lots of Plates from store are sold on the basis of 1.70c. to 1.75c. for Tank, with the usual advances for the higher grades.

Bars.—While the official price of Steel Bars remains at 1.50c., yet the actual price is 1.60c., and large makers, like Jones & Laughlins, Crucible Steel Company and others, are holding firm at this price. Some of the Steel Bar mills are filled up so far ahead that they will only book orders in which delivery is not specified. The price of Iron Bars is 1.70c., and the Republic Iron & Steel Company, the largest makers, are holding at this price. We quote 1.60c. at mill, half extras, for Bessemer Steel Bars, and \$2 a ton advance for Basic. For small lots extras are charged as follows: For one size, aggregating 1000 to 1999 lbs., inclusive, 5c. per 100 lbs.; for one size, aggregating over 500 to 999 lbs., inclusive, 15c. per 100 lbs.; for one size, aggregating 500 lbs. or less, 25c. per 100 lbs. We quote Iron Bars at 1.70c., f.o.b. Pittsburgh, with Steel Card extras.

Structural Material.—The official price of Beams and Channels up to 15-inch is 1.60c., Pittsburgh, but the actual price is from 1.80c. to 2c. Heavy contracts continue to be placed for Material for this district, and also for Eastern and Western shipment. The American Bridge Company have recently entered some heavy orders, and the same is true of the Columbia and Fort Bridge companies, local concerns. The latter interest have taken contracts for a number of bridges for a Western railroad. Official prices are as follows: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.50c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh. As noted above, actual prices of Beams and Channels are from 1.80c. to 2c., while small lots for prompt shipment bring 2.25c. and higher.

Sheets.—We note a heavy demand for both Black and Galvanized Sheets, and on account of the great difficulty of some of the outside mills getting Sheet Bars, it would not be surprising if prices would advance when spring trade actively opens. Most of the Sheet mills are sold up for the next three or four months, and prompt deliveries command slightly higher prices than contracts for extended shipment. We quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 3c. to 3.10c.; No. 28, 3.10c. to 3.15c. Jobbers quote small lots of No. 27 at 3.15c. to 3.25c. from store. We quote Galvanized Sheets at 70, 10 and 5 off in carloads, and 70 and 10 to 70 and 5 in small lots. These prices are f.o.b. maker's mill.

Merchant Steel.—The market is very active, and some of the mills have advanced prices on their full line of Steels. We quote Toe Calk Steel at 2.10c. base to 2.25c. for small lots. Tire Steel is 1.75c.; Open Hearth Spring, 2.50c. to 2.75c.; Smooth Finished Machinery Steel, 1.85c. to 2c.; Sleigh Shoes, tapered and bent, 2.50c. to 2.75c.; Ordinary Sleigh Shoes, 2c. to 2.25c.; Tool Steel,

ordinary grades, 6½c. to 7c., on which freight is allowed. Special grades are 12c. and upward. Cold Rolled and Cold Drawn Shafting is 55 per cent. off in carloads and 50 per cent. in less than carloads, delivered to all points east of the Mississippi and north of the Ohio rivers.

Merchant Pipe.—Mills report a heavy increase in tonnage, and the tone of the market is firmer than for some time. There has been a slight change in official discounts, which to the small trade are now as follows:

Merchant Pipe.	Black. Per cent.	Galvd. Per cent.
½ inch to 1½ inch, inclusive.....	60	48
¾ inch to 12 inch, inclusive.....	67½	55

Skelp.—The market is more active than for some time, and prices are very firm. We quote Grooved Iron Skelp at 1.80c. to 1.85c., and Sheared at 1.85c. to 1.90c. Steel Skelp is 1.90c. to 1.95c. for ordinary widths.

Boiler Tubes.—We note a continued heavy demand and prices are firm. Discounts on Steel Tubes have been slightly changed, and to the small trade are now as follows:

Boiler Tubes.	Up to 22 feet. Per cent.
Steel.	
1 inch to 1½ inch, inclusive.....	47½
2½ inch to 5 inch, inclusive.....	65½
1¾ inch to 2½ inch, and 6 inch to 13 inch, inclusive....	60
Iron.	
1 inch to 1½ inch and 2½ inch.....	43½
1¾ inch to 2½ inch.....	43
2½ inch to 13 inch.....	53

Coke.—The flood last week sadly interfered with the car supply, and February is said to have been the worst month since the car shortage started. It is evident the railroads need more motive power and yard room. Output of Coke in the Connellsville region last week was about 210,000 tons. Strictly Connellsville Furnace Coke has been sold in large lots as high as \$3 a ton, and the buyer furnished the cars. We quote strictly Connellsville Furnace Coke at \$2.25 a ton on contracts and \$2.50 to \$3 a ton for prompt shipment. Seventy-two-hour Foundry dry Coke is \$2.75 to \$3 a ton on contracts and up to \$3.50 a ton for prompt delivery.

Iron and Steel Scrap.—Low Phosphorus Melting Stock is in heavy demand, and has sold at \$20 to \$21 a ton. Heavy Melting Stock, consisting of Billet and Bloom Ends, is held at \$18 to \$18.50 gross ton; No. 1 Wrought, \$17.50 to \$18 net ton, while Old Iron Rails, which are very scarce, have sold up to \$23 a ton and higher.

The American Steel Company have applied for a charter of incorporation, with offices in the Park Building, Pittsburgh. The new concern will deal in Pig Iron, Steel Billets, Blooms, Slabs, Sheet Bars, &c., and will make a specialty of handling foreign Steel. The concern have already placed a number of contracts for foreign Sheet Bars for delivery in this country. The officers are Eugene S. Reilly, president; P. B. Reilly, vice-president, and M. B. Kelly, secretary and treasurer.

New York.

NEW YORK, March 5, 1902.

Pig Iron.—A number of sales of magnitude have taken place in this market, among which we note 5000 tons to a pipe foundry and about 15,000 tons to locomotive and car building interests, a part thereof for delivery to March 1, 1903. We have not heard of further sales of foreign Iron. Some of the Northern furnaces have further advanced prices. We quote for Northern Irons: No. 1, \$18.50 to \$19; No. 2 X, \$17.50 to \$17.75; No. 2 Plain, \$17 to \$17.50; Gray Forge, \$16.75 to \$17 at tidewater; Tennessee and Alabama brands, No. 1 Foundry, \$16.50 to \$17; No. 2 Foundry, \$16 to \$16.75; No. 1 Soft, \$16.50 to \$17; No. 2 Soft, \$16 to \$16.50; No. 3 Foundry, \$15.50 to \$15.75; No. 4 Foundry, \$15 to \$15.50; Gray Forge, \$15 to \$15.25.

Steel Rails.—The market is very quiet, because sellers seem unable to make deliveries. Some small lots for Central America were, however, placed this week. We continue to quote \$28 for Standard Rails.

Finished Iron and Steel.—There is a good deal of work in sight locally among the larger buildings soon to be let, one being the Corn Exchange Building. The

American Bridge Company have taken a considerable number of orders, among them 3600 tons of bridge work for the Rutland Railroad, 900 tons for the Atchison, Topeka & Sante Fé, 1100 tons for a bridge across the Scioto River, Ohio, 500 tons for the Pittsburgh, Carnegie & Western, 1000 tons for the Lincoln Avenue Arch Bridge in Pittsburgh, 450 tons for the Sharon Steel Company, 700 tons for the new plant of the Harrisburgh Pipe & Pipe Bending Company, 450 tons for the Delaware & Hudson Railroad, 1000 tons for the Northwestern Railroad and 400 tons for the Michigan Alkali Company. The price of Bars has been advanced. Prices are quoted as follows at tidewater: Beams, Channels and Zees, 1.75c. to 1.95c.; Angles, 1.75c. to 1.90c.; Tees, 1.80c. to 1.90c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.78c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.40c. for C. H. No. 1, 2.90c. for Flange and 3.40c. for Fire Box. Refined Bars are 1.80c. to 1.85c.; Soft Steel Bars, 1.80c. to 1.85c.

Metal Market.

NEW YORK, March 5, 1902.

Pig Tin.—Business has been extremely quiet. The market has advanced somewhat, as a result of the stranding of the steamship "Acara" from Singapore, with about 5050 tons aboard. Latest reports state that lighters are now discharging this cargo. The market is quoted to-day at 25.50c. to 25.75c. The London market closed £115 for spot and £111 5s. for futures. The total visible supplies, as compared with a month and a year ago, as compiled by the New York Metal Exchange, show:

	Tons.
Total visible supply February 28, 1902.....	17,043
Against visible supply January 31, 1902.....	18,351
Against visible supply February 28, 1901.....	17,016

Copper.—Is dull, and uninteresting. The market has grown weaker from day to day. There is very little disposition to buy, while holders are showing considerable willingness to sell. To-day Lake was quoted at 12.12½c. to 12.50c. Electrolytic was quoted at 12c. to 12.37½c., which was also the quotation for casting. The London market has declined more than £1, and was quoted to-day at £54 5s. for both spot and futures. During the week the London market has fluctuated considerably. Best Selected was quoted to-day at £59. According to the European statistics published by the New York Metal Exchange, stocks in Europe increased 2140 tons during the fortnight. The exports for the month of February were again large, amounting to 13,882 tons. The total exportation for the months of January and February, 1902, exclusive of Southern ports for February, was 29,356 tons. During the same period of 1901 it was 17,434 tons.

Pig Lead.—Is unchanged. The American Smelting & Refining Company quote spot at 4.12½c. and 15 days at 4.10c. London has declined a shade to £11 12s. 6d.

Spelter.—Is very dull here. The quotation is 4.25c. to 4.30c. St. Louis is quoted easier at 4.10c. and London cables £18.

Antimony.—Is unchanged. Hallett's is quoted 8c. to 8¼c.; Cookson's, 10¼c., and outside brands, 7½c.

Nickel.—Ton lots are quoted at 50c. The market is unchanged.

Quicksilver.—Prices are on a basis of \$48 per flask of 76½ lbs. in lots of 56 flasks or more.

Tin Plates.—The market is entirely unchanged. The American Tin Plate Company are quoting for delivery until July 1 on a basis of \$4.19 per box of standard 100-lb. Cokes, f.o.b. New York, or \$4 f.o.b. Pittsburgh district. London advanced 3 pence to 13 shillings 9 pence.

The Thomas Furnace Company, Milwaukee, Wis., expect to have their Minerva Furnace in operation some time this month. The company will sell their own Iron, J. F. Forsyth having been engaged to represent them as salesman. Mr. Forsyth is well known in the Western Iron trade, having been the senior member of the old firm of Forsyth, Hyde & Co., Chicago.

OBITUARY.

JEROME WHEELOCK.

Jerome Wheelock, inventor of the Wheelock engine, dropped dead on the street near his home in Worcester February 26. He had not been seriously sick and his death will be a deep shock to friends all over the United States as well as in Europe, where he had important business connections. He was 67 years old. The Wheelock engine is known everywhere that the steam engine is in use, and has won many prizes of honor for its efficiency and general excellence. Its inventor developed his engine and made a commercial success of its manufacture, and amassed a considerable fortune before he sold out his interests in the business to a corporation known as the American Wheelock Engine Company, who afterward were absorbed by the International Power Company, who are now manufacturing the Wheelock engine at their Providence, R. I., shops. When a boy Mr. Wheelock ran away from his home in Grafton, Mass., which was his birthplace, and sought a mechanical training, keeping his family in ignorance of his whereabouts for several years. He served his apprenticeship with the Taunton Locomotive Works, at Taunton, Mass., and went from there to the Washburn Iron Works at Worcester. It was while employed there that he invented the Wheelock steam cylinder packing, which is even now in use, although he began its manufacture in 1865, in partnership with Charles A. Wheeler, son of W. A. Wheeler, one of the important pioneer iron men of Central Massachusetts. Mr. Wheeler died two years later and Mr. Wheelock continued in business alone. In 1870 he occupied a shop on Union street, which was the home of the Wheelock engine works for nearly 20 years. It was at this shop that the inventor worked out his ideas, his capital being what he had earned from his cylinder packing device and other minor inventions. His valve mechanism, as well as his engine as a whole, proved a great success and he thrived. His engine took the great gold medal for progress awarded by the American Institute of New York in 1875, it being the only time the award has been made for a steam engine. The Centennial Exposition at Philadelphia in 1876 awarded him a gold medal and diploma for his engine, which, by the bye, was in charge of his 14 year old son during the exposition. The gold medal of the grand award was given him by the Paris Exposition of 1878, and he took high honors at London, Edinburgh and Brussels. The first International Millers' Exposition at Cincinnati in 1880 offered a large prize for the best steam engine, and the Wheelock engine took this prize after long and severe tests in competition with other well-known types of steam engines. One of his recent feats of engineering was the conversion of the Sound steamer "Connecticut" from an inefficient to a first-rate boat, by making over the engines which had proved themselves failures from the very beginning.

LEONARD LEWISOHN.

While on a short trip abroad, Leonard Lewisohn died in London on Tuesday evening, March 4, as the result of a brief attack of pneumonia. Mr. Lewisohn was well known, especially in the metal trades in this country and abroad. He was born in Hamburg, Germany, 54 years ago. When he was 18 years old he came to this country and opened a branch of his father's bristle and feather business in New York. He became interested in copper mining, and several years ago the metal branch of the business of Lewisohn Brothers became so extensive that the bristle and feather branch was transferred to the Lewisohn Trading Company, which still exists. In his Montana mining ventures Mr. Lewisohn was very successful, and the firm of Lewisohn Brothers became one of the strongest in the metal industry. About two years ago this business was transferred to the United Metals Selling Company, who attended to the marketing of the product of the Amalgamated Copper Company. Mr. Lewisohn was president of the former concern until the end of last year. He then continued the firm of Lewisohn Brothers, taking

with him two of his sons. The business of this concern was principally in coffee.

Mr. Lewisohn was a director in the American Smelting & Refining Company and also in the International Banking & Trust Company. He was the president and a director of the Perth Amboy Railroad Company and the Raritan Copper Company.

NOTES.

D. N. WALFORD, wholesale and retail dealer in cutlery and sporting goods, Washington, D. C., died on the 12th ult. Mr. Walford was born in England 71 years ago. About 30 years ago he came to this country and engaged in the wholesale business in New York City. Later he traveled over the country in a commercial capacity. For a time he was also located in Baltimore. Subsequently he removed to Washington, his business connection there covering a period of nearly 25 years.

JAMES A. CRAWFORD, one of the pioneer iron manufacturers in the Shenango Valley, died at his home, in New Castle, Pa., last week. It is said Mr. Crawford was connected with the first blast furnace built in Pennsylvania, west of Pittsburgh, and located at New Wilmington. Mr. Crawford was at different times connected in a business way with a number of institutions in the Shenango Valley, and also with railroad enterprises in that section.

GEORGE W. HARRISON, treasurer of the E. & G. Brooke Iron Company of Birdsboro, Pa., died at his home, at that place, on February 22, from concussion of the brain, the result of a fall on the icy sidewalk, aged 69 years. He was vice-president of the First National Bank of Birdsboro, a director of the Diamond Drill & Machine Company of that town and of the Reading Iron Foundry.

PERSONAL.

Percival Roberts, Jr., has resigned as a member of the Executive Committee of the United States Steel Corporation because he could not agree with the president on the policy to be pursued. Mr. Roberts has not as yet resigned as a director of the United States Steel Corporation.

David Baker has been appointed general manager of the Dominion Iron & Steel Company, Sydney, C. B.

Thomas Stitt has resigned his position at the Homestead Steel Works to become chief inspector of material at the Duquesne Steel Works of the Carnegie Steel Company, at Duquesne, Pa.

George M. Bard, formerly with the Republic Iron & Steel Company, has been made vice-president and general manager of the Diamond State Steel Company, at Wilmington, Del.

E. G. Spilsbury of the E. G. Spilsbury Engineering Company of New York has sailed for Europe. He expects to return early in April.

The contract has been awarded at Sharon, Pa., to George Pratt of Findlay, Ohio, for the club building which F. H. Buhl of Sharon is presenting to the city. The contract price is about \$150,000, exclusive of furnishing and equipment of the library, gymnasium and other departments. The building will take a year to erect, and will be of stone and terra cotta.

Charles L. Dean of the Ludlow-Saylor Wire Company, St. Louis, has returned from Bermuda.

H. M. Chance, consulting mining engineer, of Philadelphia, has removed his office to 819 Drexel Building.

The Railway Steel Spring Company.—On Thursday last the organization of the Railway Steel Spring Company was perfected. Julius E. French was elected president and Aaron French chairman of the Board of Directors. The Executive Committee will consist of Julius E. French, Truman H. Newberry and Frank B. Smith. The other officers are as follows: Frank S. Layng, vice-president; Charles Scott, Jr., second vice-president; George B. Sloan, Jr., third vice-president; Frank Carnahan, assistant treasurer; M. B. Parker,

secretary; De Witt Loomis, general superintendent. In the official announcement sent to the trade the company state that they have acquired the car spring plants of the following companies: A. French Spring Company, Detroit Steel & Spring Company, Charles Scott Spring Company, Pickering Spring Company, Limited; National Railway Spring Company, and Crucible Steel Company. The principal offices of the company are located at 71 Broadway, New York.

A New Buffalo Electric Cupola Blower.

A new electric blast unit has been designed and built by the Buffalo Forge Company of Buffalo, N. Y. It consists of a Buffalo steel pressure blower with countershaft, adjustable bed and electric motor.

It is essential that the proper amount of air be supplied to the fuel in order that combustion may proceed with satisfactory rapidity. The pressure necessary to force the air in the cupola in sufficient quantities of necessity varies with the required rate of melting, the manner in which the cupola is charged, the size and number of cupolas, and the blower must in addition overcome the frictional resistance of the blast spring.

The pressure which a fan develops varies approximately as the square of the speed, while the power required varies as the cube thereof. This means that the most satisfactory melts will be made with the lowest pressure that will deliver sufficient quantity of air to the fuel. The constant tendency of foundry practice has been toward the reduction of the pressure employed and the increase of the tuyere area with the attendant result of a decreased power consumption. Still a comparatively high pressure is required to force the air through the cupola, and for this reason steel pressure blowers, common in cupola work, are constructed with narrow blast wheels are driven at a high velocity. In consequence of this latter fact the greatest care is of necessity to be exercised in their construction.

The main casing and the discharge orifice of the Buffalo blower is a single casting, and to this is securely bolted the two side plates carrying the bearing brackets. Ring oiling bearings support the wheel shaft, on which are the two blower pulley wheels. The blast wheel is built up of curved steel plate blades bolted at their center to the spider arms, and at their edges to conical side plates for securing additional rigidity. Wrought iron tee arms cast into heavy hubs form the spider.

The blower rests on one end of an adjustable bed, at the other end is placed a countershaft with two driving pulleys direct connected to the shaft of an electric motor. This motor is placed upon the same bed as the countershaft and blower, and by means of a simple device on the bed it is possible to give the blower a longitudinal movement for the purpose of tightening the belts while the apparatus is in operation. In order that this may be accomplished without disturbing the blast piping, a telescopic mouth piece is fitted to the blower outlet.

The motor operating the fan in this case is a four-pole machine designed for such work by the General Electric Company, and embodies all the desirable features gained by long experience in these lines. Built to meet extreme variations of load, the motor is never the less practically free from sparking. The armature coils are wound by machine, separately insulated and tested, and are interchangeable for each size and voltage.

In the works of the Buffalo Forge Company these units are connected and carefully brought to a running balance. This procedure is essential for the best results. It may be added that some of the typical features of this unit are as follows: The design and construction is such as to insure high speeds without harmful results from vibration. Lengthy service with minimum attention; the apparatus is complete in itself, and may be operated or the speed changed at will; may be placed in an out of the way corner, or on an elevated platform. These blast units are built in 14 different sizes, and with the blower any standard motor on the market may be employed.

New Armstrong Machinists' Tools.

The Armstrong Bros. Tool Company, 617 to 621 Austin avenue, Chicago, are increasing their line by the addition of three devices for the use of machinists. Their planer jack is a handy, substantial and mechanical device for leveling work on the planer, milling machines, &c. It is designed to displace the haphazard devices and methods now generally in use for this purpose. A set of these jacks on a machine will greatly reduce the proportion of time required for preliminary arrangements as compared with the actual machine time on the job, and, moreover, by their perfect adjustability and solidity will insure good, true surfaced work. The base of these jacks is substantially made of malleable iron, faced true on the bottom. An important feature is a split hub and screw, providing a convenient means for locking the jack screw in position and compensating for the wear of the screw and socket. This hub and screw is case hardened. The tilting cap is of malleable iron, faced on the top, and is attached to the head of the screw by a ball and socket arrangement which allows it to adapt itself to uneven, irregular or angular surfaces. The screw is made of steel with the United States standard thread, and has a hexagon neck for a wrench. These jacks are made in four sizes, the smallest size having a minimum height of 2¼ inches and a maximum height of 3¾ inches, while the largest size has a minimum height of 7½ inches and a maximum height of 12 inches.

Their clamp lathe dog is so constructed as to combine the convenient features of the clamp dog with the simplicity and strength of the ordinary lathe dog. It will accommodate itself readily to work of any shape, which it will hold securely and squarely, being especially adapted for use on finished work, which would be liable to be damaged by the set screw of a common lathe dog. The sliding block is drawn up to the work by a loose fitting U bolt of steel, threaded on the ends, and with case hardened nuts loosely fitted, so that they can be run rapidly to size without using a wrench until tightened. The body of the dog is of cast steel, and the design is such that there are no projecting screws or other parts liable to catch the file or the workman's hand or clothes. A great advantage of this dog is that it can be adjusted without removing the work from the center. It possesses a wide range of adjustment. It is made in seven sizes, which are properly proportioned and balanced to take work from ⅛ inch in the smallest size up to 5 inches in diameter in the largest size.

Their clamp drill holder is a special device for use in holding straight shank drills, reamers, or similar tools with safety to the operator, and without danger of injury to the tool held. In construction it is similar to the lathe dog above described. The handle is polished and the rest of the tool is neatly painted. This holder is made in four sizes, having a capacity ranging from a minimum of ¼ inch in the smallest size to a maximum of 3 inches in the largest size.

Germany's Pig Iron Consumption.—The rapid development of the consumption of pig iron in Germany and the sudden check during the last year are well shown by a series of figures recently published. The following table shows the production and the excess of imports or of exports in recent years in metric tons:

Years.	Production.	Excess of imports.	Excess of exports.	Total consumption.
1885.....	3,687,434	.....	27,089	3,660,345
1890.....	4,658,451	246,858	.....	4,905,309
1895.....	5,788,798	.....	20,547	5,768,251
1896.....	6,360,982	144,263	.....	6,505,245
1897.....	6,889,067	332,009	.....	7,221,166
1898.....	7,312,766	135,417	.....	7,448,183
1899.....	8,143,132	440,599	.....	8,583,731
1900.....	8,422,842	636,589	.....	9,059,431
1901.....	7,785,887	.....	9,981	7,775,906

These statistics ignore stocks, concerning which no data exist. Probably were they taken into account the consumption of 1900 would be shown to have been less, the same being true probably of 1901.

The Empire Steel & Iron Company.

At the recent annual meeting of stockholders, held in Jersey City, the following were elected members of the Board of Directors for the ensuing year: Leonard Peckitt, Archer Brown, Frank M. Davis, Frank M. Jeffrey, David B. Gamble, Elverton R. Chapman, Junius S. Morgan, Mark T. Cox and Charles H. Zehnder.

David B. Gamble of Proctor & Gamble, Cincinnati; Mark T. Cox of Robert Winthrop & Co., bankers, New York; Junius S. Morgan of Cuyler, Morgan & Co., bankers, New York, and Charles H. Zehnder, late president of the Scranton Locomotive Works, have been added to the board during the year as vacancies have occurred.

At the meeting of the Board of Directors following the stockholders' meeting the following officers were elected for the ensuing year: President, Leonard Peckitt; vice-president, Charles H. Zehnder; treasurer, S. B. Patterson; secretary, J. M. Fitzgerald, assistant treasurer, J. S. Stillman; assistant secretary, A. F. Marmelstein, Jr. Executive Committee: Archer Brown, E. R. Chapman, Mark T. Cox. Finance Committee: Mark T. Cox, J. S. Morgan, D. B. Gamble.

The following points from President Peckitt's report give the essential features of the company's operations for the past year, with the financial exhibit as of December 31, 1901:

During the year, you acquired by purchase, the balance of the outstanding stock of the Crane Iron Works, and as you are now the full owners of that company, we have decided to combine the Empire and Crane reports in the following manner: The production of the furnaces during the year was 185,990 tons of pig iron, and over the same period we shipped 190,362 tons, thereby reducing our stock by 4372 tons. There were mined during the year 94,345 tons of ore, of which 87,327 tons were used in our furnaces and 7018 tons sold on the market at a good profit. The total profits from this source, charging ore to furnaces at market price, were \$49,733. The statement as made by our assistant treasurer, J. S. Stillman, shows the following general results:

Gross earnings.....	\$229,097.51
Placed in sinking fund.....	71,838.53
Interest on Crane first mortgage bonds.....	11,874.00
Net profits.....	145,384.98
Dividend of 3 per cent. on Empire preferred stock...	71,043.00
Profit and loss account increased.....	74,341.98

Our combined working capital stands:

Cash in bank.....	\$91,113.19
Bills receivable.....	52,714.12
Accounts receivable.....	301,783.41
Inventories.....	442,682.46
Securities.....	25,383.28
Total.....	\$913,676.46

Contra.

Bills Payable.....	\$269,862.93
Accounts payable.....	278,149.18
Pay roll.....	29,296.09
Preferred stock dividend due stockholders, payable January 1, 1902 (since paid).....	35,521.50—\$612,829.70
Net working capital, December 31, 1901.....	\$300,846.76

During the year just ended we have reduced our current indebtedness by \$186,079.62, and have continued our policy of paying all bills in cash, taking advantage of cash discounts. We paid out for Crane securities purchased during the year, \$65,105.01, and you are now the owners of all the second-mortgage bonds and stock of that corporation. There were authorized during the year expenditures necessary toward the improvements of our furnace properties at Goshen, Topton, Reading and Catasauqua, all of which were completed with the exception of the Crane Furnace, which will be blown in early in March. The development of the New Jersey mines is now well under way, and while our output of magnetic ore will likely be curtailed for the next six to eight months, the value of the properties will be greatly enhanced by being made large producers of ore, which can be gotten out at a much cheaper cost than we were

able to mine it with present equipment and openings. Your directors have already authorized the expenditure of \$100,000 toward the improvement of these mines, and when the necessary new machinery is once installed you will have a mining property second to none in the East and one that you will find more and more valuable as time goes on. In addition to the showing made by the mines the profits from the operation of the Mt. Hope Mineral Railroad, a branch road connecting our properties with the main line of the N. J. C. R. R. and the D., L. & W. railway, were \$17,564.56, or nearly 11 per cent. on the capitalization. The prevailing prices for pig iron, while varying somewhat during the period covered by the report, netted us on our sales \$3.43 per ton less than in the year previous, the average net selling price being in 1900 \$17.37, and in 1901 \$13.94. Out of the 12 furnaces owned by your company and two controlled by lease, nine are now in operation and producing an average of 725 tons daily. The repairs to one Allentown, one Crane and Shenandoah are about completed, and with these furnaces added to the active list the daily output will be close to 1050 tons.

The condensed balance sheets of the two companies at close of business December 31, 1901, are as follows:

EMPIRE STEEL AND IRON COMPANY.

Assets.

Real estate, plants and machinery.....	\$3,802,500.00
Stocks and bonds.....	1,002,527.61
Cash in banks.....	89,745.83
Bills receivable.....	3,002.91
Accounts receivable.....	108,035.71
Inventories, pig iron, raw material, supplies, merchandise, live stock, &c.....	269,899.17
Total.....	\$5,275,711.23

Liabilities.

Capital stock—common.....	\$2,368,100.00
Capital stock—preferred.....	2,281,400.00— 4,649,500.00
Bills payable.....	226,178.24
Pay rolls.....	21,667.54
Dividend payable January 1, 1902.....	35,521.50
Accounts payable.....	172,144.06
Profit and loss.....	170,699.89
Total.....	\$5,275,711.23

CRANE IRON WORKS.

(Owned by the Empire Steel & Iron Company.)

Assets.

Real estate, plant and machinery.....	\$932,504.59
Stocks and bonds.....	37,100.00
Expenditures for extraordinary repairs, renewals and improvements in excess of sinking fund...	85,553.47
Cash in bank.....	\$1,367.36
Bills receivable.....	49,711.21
Accounts receivable.....	193,747.70— 244,826.27
Inventories, pig iron, raw materials, supplies, &c...	172,783.29
Total.....	\$1,472,767.62

Liabilities.

Capital stock.....	\$502,133.83
First-mortgage bonds.....	197,900.00
Second-mortgage bonds.....	502,133.33— 1,202,166.66
Bills payable.....	\$43,684.69
Accounts payable.....	106,005.12
Pay rolls.....	7,628.55— 157,318.36
Profit and loss.....	113,282.60
Total.....	\$1,472,767.62

From present indications the prospects for the coming year are most encouraging.

The Electric Tower of the Pan-American Exposition has been sold to parties in Denver, Col., and it is to be taken down and shipped to that city, where it is to be re-erected in a park. When rebuilt the outer covering will be of more substantial material than the present staff, and it is intimated that it will be fully illuminated when installed in Denver. Thus the great and notable attraction of the defunct Pan-American is destined to form a wonderful attraction in the far West. Its height has been given all the way from 375 to 408 feet. It was designed by John Galen Howard of New York. It is expected that it will take about 30 days to raze it.

Iron and Industrial Stocks.

In some of the steel issues there have been some fluctuations, and notably in Tennessee Coal & Iron, in which negotiations are pending for an adjoining plant. On the whole the market has been steady, with a rising tendency. Thus Car and Foundry, Colorado Fuel, Pennsylvania Steel preferred, Pressed Steel preferred, Republic Iron & Steel preferred and Sloss-Sheffield common have advanced a point or more during the week.

The Chateaugay Ore & Iron Company of Lyon Mountain, Clinton County, have filed a certificate showing that they have reduced the amount of their capital stock from \$1,500,000 to \$750,000, and then increased the same from \$750,000 to \$2,750,000. The stock has been divided into \$750,000 first preferred, \$750,000 second preferred and \$1,250,000 common stock. Smith M. Weed is president and Talbot Olyphant secretary of the company.

There was a meeting of the directors of the Dominion Iron & Steel Company in Montreal on Saturday last. It was decided to increase the capital by an issue of \$10,000,000 of new common stock. Mr. Ross, the managing director, announced that the issue was already underwritten and would be open to subscription as soon as the necessary authority should be obtained from the Nova Scotia Legislature. The question of a dividend on the preferred stock is to be considered at the next meeting, which will be held in the latter part of the present month. Mr. Ross left on Sunday night for England.

In the Boston market the stock of the Dominion Iron & Steel Company fell quite sharply on the announcement, falling from 34 to 30 $\frac{1}{4}$. The Dominion Coal Company, on the other hand, advanced to 97 $\frac{1}{4}$, a record price.

It is reported that more than the entire issue of the stock of the Lackawanna Steel Company of Buffalo, N. Y., has been subscribed for and that allotments will be cut down somewhat.

George P. Tolz of 20 Broad street, New York, is offering \$50,000 of first consolidated mortgage 5 per cent. 20-year gold bonds of the Poughkeepsie Light, Heat & Power Company of Poughkeepsie, N. Y. They are subject to call November 1, 1911, at 105 and interest. The company own the properties of the Poughkeepsie Gas Light Company and the Poughkeepsie Electric Light & Power Company.

Dividends.—It is said the next dividend on the stock of the Westinghouse Air Brake Company of Pittsburgh will carry an extra disbursement with it. The earnings of the company, it is claimed, more than justify such action.

The regular quarterly dividend of 1 $\frac{1}{4}$ per cent. on the first preferred stock of the Westinghouse Electric & Mfg. Company of Pittsburgh was declared last week.

The Board of Directors of the American Window Glass Company of Pittsburgh have declared a dividend of 1 $\frac{1}{2}$ per cent. on the common stock, payable April 15, to stock of record April 1. The regular semiannual dividend of 3 $\frac{1}{2}$ per cent. of the preferred stock was also declared, payable March 1.

At the annual meeting of the American Steam Gauge & Valve Mfg. Company, held at Boston, Mass., E. P. Barrett was elected president and J. L. Weeks treasurer. A dividend of 3 per cent. was paid to stockholders of record December 31, 1901.

The International Silver Company have declared a quarterly dividend of 1 per cent. on their preferred stock, payable April 1.

The Alabama Consolidated Coal & Iron Company have paid a dividend of 1 $\frac{1}{4}$ per cent. on their preferred stock.

The Ticonderoga Machine Works of Ticonderoga, N. Y., have secured the contract for bell and hopper and hopper extension, bosh plates and other castings for the Cedar Point Furnace, at Port Henry, N. Y.

Output at the Valley and Brown-Bonnell plants of the Republic Iron & Steel Company, in Youngstown, in February was about 23,500 tons of finished material, a

larger output by 500 tons than in any previous month in the history of the two plants.

Quotations of Iron Stocks.

Cap. Issued.		Sales.	High- est.	Feb.	Low- est.	Feb.
\$10,000,000	Am. Bicycle Co., com.	8,200	3%	27	2	25
20,000,000	Am. Bicycle Co., pref.	2,600	15 $\frac{1}{2}$	27	10 $\frac{1}{2}$	25
10,000,000	Am. Bicycle Co., bonds	17,000	58 $\frac{1}{2}$	26	55	18
29,000,000	Am. Car & F'dry, com.	12,200	29%	13	28 $\frac{1}{2}$	24
29,000,000	Am. Car & F'dry, pref.	9,900	87 $\frac{1}{2}$	14	86	4
	American Loco., pref.	11,100	93	10	92	20
15,000,000	Bethlehem Steel.....	.....	.....	.....	.....	.....
45,000,000	Cambria Steel.....	10,800	24 $\frac{1}{2}$	19	23 $\frac{1}{2}$	19
17,000,000	Colorado Fuel & Iron.	19,100	88	3	84 $\frac{1}{2}$	19
24,410,900	Crucible Steel, com...	.....	.....	.....	.....	.....
24,399,500	Crucible Steel, pref...	.....	.....	.....	.....	.....
1,975,000	Diamond State Steel.	3,800	2 $\frac{1}{2}$	24	1 $\frac{1}{2}$	3
15,000,000	Inter. Pump, com....	2,500	53 $\frac{1}{2}$	18	52	3
8,850,000	Inter. Pump, pref....	500	90	25	89	21
11,000,000	International Silver..	1,000	6 $\frac{1}{2}$	3	6 $\frac{1}{2}$	13
10,750,000	Pa., new, com., Phila.	.....	.....	.....	.....	.....
16,500,000	Pa., new, pref., Phila.	700	85	13	84	6
12,500,000	Pressed Steel, com....	4,500	42	3	39	27
12,500,000	Pressed Steel, pref...	4,100	84 $\frac{1}{2}$	8	82 $\frac{1}{2}$	19
27,191,000	Rep. Iron & Steel, com.	23,900	17 $\frac{1}{2}$	4	15 $\frac{1}{2}$	20
20,306,900	Rep. Iron & Steel, pref.	16,600	71 $\frac{1}{2}$	28	68 $\frac{1}{2}$	7
7,500,000	Sloss-Shef. S. & I., com.	2,700	33	25	30 $\frac{1}{2}$	11
6,700,000	Sloss-Shef. S. & I., pref.	600	83 $\frac{1}{2}$	11	82 $\frac{1}{2}$	4
20,000,000	Tennessee Coal & Iron.	220,000	71 $\frac{1}{2}$	25	63	4
1,500,000	Tidewater Steel.....	600	6 $\frac{1}{2}$	20	5 $\frac{1}{2}$	6
510,361,300	U. S. Steel Co., com..	307,750	44 $\frac{1}{2}$	26	43	5
508,511,200	U. S. Steel Co., pref..	287,200	95 $\frac{1}{2}$	28	93	5
1,500,000	Warwick I. & S.....	13,500	5 $\frac{1}{2}$	1	4 $\frac{1}{2}$	4

Pittsburg.

HAMILTON BUILDING, March 5, 1902.—(By Telegraph.)

Pig Iron.—The market has quieted down somewhat and large producers of Pig Iron are using their utmost endeavors to hold the market where it is and keep the price from advancing. The Steel mills are pretty well covered with Bessemer Iron and no large lots have been sold. The official price of the Bessemer Furnace Association is \$16 at furnace, but for second and third quarters all the way from \$16.50 to \$17 are quoted. Forge Iron is firm at \$16.75 to \$17, Pittsburgh; No. 2 Foundry Iron is \$17 to \$17.25, and No. 1, \$17.50 to \$18, Pittsburgh.

Steel.—The market is more active than for some time, and there have been some fairly large sales. We quote domestic Billets at \$31 to \$32, maker's mill. We note a sale of 500 tons at \$31.25 at mill, and also 1000 tons of foreign Sheet Bars at \$33, delivered in the Pittsburgh district; also a sale of 6000 tons of Bessemer Billets for shipment over last half of the year to an Eastern consumer at \$30, maker's mill; also a sale of 8000 tons of Sheet Bars, May to September delivery, at \$32, maker's mill, or slightly less than \$33, delivered.

The Dellwik-Fleischer Water Gas Process.—There has just been issued by the Dellwik-Fleischer Water Gas Syndicate of Westminster, London, a pamphlet descriptive of a series of plants erected under the Dellwik-Fleischer patents for the production of illuminating, heating and power water gas. These installations are at West Bromwich, at the works of the Leeds Forge Company, Leeds; at the plant of Deighton's Patent Flue & Tube Company, Limited, Leeds, England; at the corporation gas works at Koenigsberg, Erfurt, Iserlohn, Pforzheim, Barmen-Rittershausen, in Germany; at Lyons, France; at the Laurahutte, Silesia; at the German Tube Works Company, Duesseldorf, the Vulcan Engineering Works, Norrkoping, the Avesta Iron Works, in Sweden, and others.

John W. Garland, president of Garland Chain Company, at Rankin, near Pittsburgh, with associates has bought about 600 acres of land at Moravia, near New Castle, Pa., located on the Pittsburgh & Lake Erie, Pittsburgh & Western and several other trunk lines. Arrangements have already been made for the building of a large industrial plant at Moravia, and it is probable that other manufacturing plants will be located there. It is said to be the most desirable manufacturing site between Pittsburgh and New Castle, and the name will be changed from Moravia to West Pittsburgh.

The New York Machinery Market.

NEW YORK, March 5, 1902.

The month opened with the same steady volume of business that made February, short as it was, show up as well as any month for the last year or more. In the machine tool trade business is keeping up remarkably well. On the first of this month the price of milling machines was advanced from 5 to 10 per cent. This advance only affected the principal sizes of the machines, however. The advances were made by the two leading builders of this class of machine tools.

The Milwaukee Machine Tool Company of Milwaukee are said to have a new heavy turret machine which they will soon place on the market. Several Cincinnati machine tool builders are said to be interested in the company.

No official announcement has been made as yet by the Chicago Pneumatic Tool Company regarding the absorption of the Standard Pneumatic Tool Company. We are informed that the formal transfer will not be made until April 1. In the meantime the product of the Standard Company is being turned over to the Chicago Company.

No awards have been made as yet in connection with the Springfield Armory work.

A report has been current in the street during the last week or two purporting that an extensive new shop system was to be installed by the Chicago, St. Paul, Minneapolis & Omaha Railway. We are advised by Charles W. Johnson, chief engineer of the road at St. Paul, that the company are considering the erection of shops at Sioux City. It has not yet been determined, however, just how extensive they will be. No plans have yet been made. It is possible that the shops will be built this year, but more probable that nothing will be done until next.

New car repair shops are to be erected at Utica by the Utica & Mohawk Valley Railway Company of Utica, N. Y. A. S. Linn, Jr., assistant secretary and treasurer of the company, informs us that it has not yet been decided what new machinery equipment will be required.

We have received official confirmation of the report that the Rutland Railroad Company and the Ogdensburg & Lake Champlain Railway Company, recently consolidated, with headquarters at Rutland, Vt., will erect extensive machine shops at Rutland, Vt. Some of the minor details remain to be settled before the project is in definite shape for the work to commence. The improvements planned for Rutland cover considerable work other than the machine shops. On this portion of the work, however, upward of \$200,000 is to be expended. The locomotive repairing and car building of the entire Rutland system is to be done at the new works. A new station is to be built and a central electric plant, to be used both for lighting the station and operating the shops.

The Rochester & Pittsburgh Coal & Iron Company, Punxsutawney, Pa., are in the market for several 150-pound hammers, operated by either steam or compressed air. Lucius W. Robinson is president and general manager.

Henry H. Angell, Ithaca, N. Y., advises us that he is about to establish, in that city, a first-class machine shop. None of the equipment has as yet been contracted for. The shop will be operated by gas engines. Gas engines will be the principal product of the new plant.

The Penobscot Machinery Company, Bangor, Maine, advise us that they are to increase the capacity of their machine shop, and at a later date erect a foundry. The concern build principally engines and boilers. Rodney C. Penney is president and L. E. Levenseller is treasurer of the company.

As soon as insurance matters are adjusted the R. Neumann Hardware Company of 9 St. Francis street, Newark, N. J., will re-equip their plant, which suffered a \$140,000 fire last week. The company are the largest manufacturers of trunk hardware in this section of the country, and a great many drop and power presses were destroyed in the recent fire.

W. B. Catchings & Co. of 68 Wall street, New York,

and 1914 Morris avenue, Birmingham, Ala., will soon purchase considerable equipment for a new rolling mill to be erected in Alabama. Details are printed in another column.

The Ohio Talking Machine Company of Toledo, Ohio, are in the market for machines producing small steel needles. Winant V. P. Bradley is president of the company.

James J. Allen, 127 West Wash Lane, Germantown, Pa., is in the market for a portable or traction engine suitable for portable saw mill work.

Carleton & Moffat, 64 Pine street, New York, want to purchase a machine suitable for extracting fiber from aloe leaves. The machine is to be sent to Bombay, India.

The Burlington, Winooski & Colchester Mills of Winooski, Vt., advise us that the American Woolen Company, proprietors, are to put in new engines, boilers and to completely reconstruct their plants at Burlington, Winooski and Colchester. H. G. Nichols is president of the company, with offices in Boston, and Thos. F. Patterson of New York is treasurer.

J. & J. Rogers Company, manufacturers of sulphite spruce fiber, Ausable Forks, Essex County, N. Y., contemplate the erection of a new paper mill. They expect to put in one 126-inch machine, and will drive the mill principally with electricity. For this purpose they will develop a water power to transmit about 1000 electrical horse-power, and expect to get at work on the building in the early spring. The officers of the company are: James Rogers, president; George Chahoon, vice-president; J. Monroe Sheffield, secretary.

Plans are being prepared by the International Hard Rubber Company of Butler, N. J., for the rebuilding of their entire plant. In addition to a new power plant equipment, a large amount of special machinery will be required.

The Hartford Blower Company, Incorporated, of Hartford, Conn., have just received an order from the Pratt & Whitney Company, Hartford, Conn., for a complete system for removing the shavings, sawdust, chips, &c., from the machinery in their wood working department. This complete system consists of the exhauster, dust collector, piping and hoods, together with all special fittings, &c. The refuse is removed from each machine and conveyed to a dust collector placed on the roof, from where it is deposited into a dust receptacle. From this receptacle is a pipe leading to the first floor, where it can be loaded into a wagon and taken away. The officers of the Hartford Blower Company are: Elizur Keeney, president, and C. H. Keeney, treasurer and general manager.

The Buffalo Forge Company of Buffalo, N. Y., are building a large and interesting fan to be used for mine ventilation by the Modoc Coal Mining Company of Glouster, Ohio. This fan has a 250-inch housing of the three-quarter type, and is constructed throughout of steel plate rigidly stiffened and braced. The blast wheel is of special design. It is to be driven by a direct connected horizontal engine at a speed of about 150 revolutions per minute. The fan will deliver 125,000 cubic feet of air per minute at ordinary working speed.

A notification has been sent to the trade from Yokohama, Japan, stating that the partnership hereto existing under the firm name of Stone, Fisher & Co. has been dissolved, A. M. Fisher withdrawing from the firm and his interest and responsibility ceasing. The business will be continued under the firm name of Walter S. Stone & Co., who are about to effect arrangements that will enable them to materially extend the scope of their business, while continuing on the same general lines. It will be recalled that Mr. Fisher has associated himself with the American export firm of Browne & Frothingham of 32 Broadway, N. Y., where he is establishing a very elaborate and comprehensive system of representing American machinery builders in all countries of the world.

The A. J. Beckley Company.—The A. J. Beckley Company, manufacturers of perforated metals for milling and mining machinery, &c., whose New York offices are located at 284-286 Pearl street, have just equipped

a new factory at Garwood, N. J. They have installed machinery and dies capable of punching metals of any kind of any thickness. The new shop has not only increased the scope of their work but their productive capacity as well.

Worcester Notes.

WORCESTER, MASS., March 1, 1902.—Edward K. Lombard, owner of practically all the stock of the N. A. Lombard Company, manufacturers of woolen machinery, has sold out his interests to E. H. Ingram and J. J. Wehinger, the partners in the business of the W. H. Eddy Company, manufacturers of turret lathes, foundry molding machines and special machinery. The Eddy Company's business will be merged into that of the Lombard Company as a machine tool department, and the N. A. Lombard Company corporation will continue. The Lombard Company are one of the oldest concerns in Central Massachusetts, their beginning dating back to 1823. N. A. Lombard went into the business in 1851, and the company have since born his name. He died in 1895, when his son, E. K. Lombard, inherited the business. They are a Massachusetts corporation, with capital stock of \$20,000. The new owners have leased the Lombard buildings, which will give them 16,000 square feet of floor space, which they greatly need, as their machine tool business has grown until the present quarters in Merrifield buildings are entirely inadequate. The turret lathe and foundry molding machine are in large demand, especially the molding machine, which draws the patterns from a group of flasks by one motion of the mechanism. The machines are in use by the Pratt & Whitney Company of Hartford, Conn.; the Brown & Sharpe Company of Providence, R. I.; the West Side Foundry Company of Troy, N. Y., the Black Pump Works and a concern in England. The Allison Foundry Company have learned that the cost of casting window weights was decreased from \$32 to \$14 a ton by the use of the foundry molding machines. It is also claimed that more perfect castings are secured than is possible by hand labor. The N. A. Lombard Company have reorganized with E. H. Ingram as president, and J. J. Wehinger as treasurer and clerk. The company will continue the manufacture of wool carding machinery, the specialty of the Lombard Company, as well as push the machine tool department. The name of W. H. Eddy Company, long time known in the machine tool trade, will go out of existence.

The H. C. Fish Machine Works Company have just shipped a gap lathe to Chihuahua, Mexico, for the Batopilas Mining Company. The lathe has a swing of 20 inches, and 40 inches with the gap piece out, and a 16-foot bed. As it will have to be carried on mule back 200 miles from the railroad into the Mexican mountains, the big machine was built in sections and packed in 22 boxes. The weight boxed is 5169 pounds, and the weight set up, 44108 pounds.

The Standard Screw Company, who are the owners of the Worcester Machine Screw Company's business, are issuing new bonds, the proceeds of which will be devoted to building a large plant in Detroit, Mich. A. W. Gifford of Worcester is responsible for the statement that the company will probably centralize their standard screw business at the new plant, at Detroit. It is likely that the company will also build a rolling mill at Detroit in the near future, that they may produce their own raw material. The Standard Screw Company were organized two years ago under New Jersey laws with an authorized capital of \$1,500,000, of which amount less than \$1,000,000 has been issued. The new issue of bonds amounting to about \$50,000 will clean up an authorized issue of \$400,000. The plants included in the combination are those of the Worcester Machine Screw Company, the Detroit Screw Works and the Chicago Screw Company. Since that time the company have acquired the business and plant of the Pearson Mfg. Company, at Chicago, and the patent rights owned by the Lavigne Automatic Machine Company of New Haven, Conn., and are building the Lavigne automatic machines at the Pearson shops at Chicago, and installing them in

their works. When the new Detroit plant is completed the other factories will be devoted to the manufacture of special screws. The Worcester plant will be greatly relieved by the taking away of the standard screw business, because as it is the company are compelled to refuse orders. Special screw business would keep the large Worcester plant rushed to its full capacity, even if no standard screws were manufactured here.

The Plunger Elevator Company have received an order for three freight elevators for the Baldwin Locomotive Works of Philadelphia. Each will have a lifting capacity of six tons.

The Eastern Bridge & Structural Company have been invited by Henry Milward, an English engineer, to furnish plans and specifications and to do all the structural work of a large drawbridge to connect the locks of a floating dock at Swansea, England. The bridge will be operated by hydraulic power, the machinery for which will be built in England. Several drawbridges of similar design are in use along the English coast, but none approaching this in size. In fact it is claimed for it that it will be one of the largest, if not the largest drawbridge in the world. The builders are not ready to give out its dimensions.

The Compulsory Use of the Metric System.

A committee of the American Society of Mechanical Engineers, consisting of Coleman Sellers, Coleman Sellers, Jr., George M. Bond, J. E. Sweet and Charles T. Porter, has addressed to the council the following letter, under date of February 19:

The committee of your society to whom has been referred the consideration of the metric system in comparison with the system in use in the United States, at a meeting held in Philadelphia to-day at which were present the subscribers in person or by letter, begs to report as follows:

An attempt is being made through the Committee on Coinage, Weights and Measures of the Fifty-seventh Congress in reference to H. R. Bill No. 2054 supplemented by H. R. Bill No. 123, compelling the adoption of the (French) metric system of weights and measures in all Departments of the Government in all its workshops and in all matters connected with construction or commercial operations other than those relating to public lands and surveying. In this bill on lines 9, 10 and 11, it will be seen that after fixing a date for its compulsory use, it states that the metric (French) system of weights and measures shall be "the" legal standard of weights and measures recognized in the United States. The word "the" on the tenth line must be considered as meaning the only legal standard, for the reason that the French metric system of weights and measures is now and has been for many years legalized by act of Congress, and is as free to be used and as legal in the use as are the pounds and tons or yard, feet and inches heretofore and at present commonly used in this country. If this bill is passed it will make what we are now using to such good advantage illegal. The attention of the members of this society is therefore called to the proposed legislation, and it is earnestly urged by the committee that all the members should address their respective representatives in Congress protesting against the passage of H. R. Bills No. 2054 and No. 123, expressing in the strongest terms their opposition to a measure involving changes that will inconvenience and hinder trade and manufacturing, and requiring an expenditure of time and money that cannot be expressed in figures, sweeping away as it does the advantages accruing from the numerous established standards now recognized and universally adopted throughout the country.

In North Tonawanda a large tract of land is to be reclaimed from the river by filling it in with hot slag. In the same vicinity a large amount of land has been filled in with cold slag, but now the new method has been adopted. The hot slag is carried from the North Tonawanda iron plant in a cinder car.

HARDWARE.

THE reports which are given in this issue, as well as those which have already appeared in our columns during the past month, give impressive demonstration of the vitality of the movement among the retail Hardware trade in the direction of organization. From these reports it will be evident to those who carefully study them that many thoroughly representative merchants are among the active friends of the movement, which they are helping along by their identification with it and their co-operation in its work. That representative merchants of character and position are willing thus to give to the trade at large the benefit of their time and thought gives the association movement an important indorsement, which will commend it to those in the trade who are not already identified with it and thus help materially to insure its success. Many of the papers read before the associations relate to questions of so much interest and were discussed in so broad and intelligent a way as to deserve the general attention of the trade.

The increase in membership of nearly all the associations during the past year is exceedingly encouraging as giving promise of still further growth. Most of them report substantial progress, and in some this has been very marked. There is evidently an opportunity for a friendly rivalry, not only as to which State is to have the banner association in the matter of membership, but also in the efficiency of its work and the success with which it accomplishes the objects for which it is organized. This is a matter in which very much will depend on the lines on which the association works and the efficiency of its executive officers. It must not be overlooked that new associations are being formed in States which heretofore have not joined the movement, and that in certain States the subject is under advisement, although nothing definite has been accomplished. It must be remembered that many merchants recognize the existence of evils which the association movement endeavors to correct, but while its aims have their hearty approval they are waiting for others to do the pioneer work and prepare the way for the association. The association spirit, while already showing itself an important factor in the trade through the organizations which are now in operation, has an undertone of sympathy and strength among the merchants at large, which is only waiting an opportunity to make itself felt.

Another evidence of the position which the retail organization movement has already assumed is given in the attention bestowed on the annual gatherings of the State associations by the jobbing trade. The presence of an official representative of the National Hardware Association at several of the State gatherings was a pleasant feature, and at the same time a fitting recognition of the significance and strength of the movement among retail merchants. It is desirable on all accounts that there should be harmonious relations between the retail trade, who are the final distributors, and the wholesale trade, who are the channel through which so many of them receive a larger or smaller proportion of their goods. In the confusion which has existed in the trade for some time irregularities have crept in, in efforts to correct which there should be friendly relations and a good understanding between the two divisions of the great army of distributors. Many of the evils under which the retail trade are suffering came from a failure on the part of manufacturers or jobbers to recognize

the fact that, generally speaking, the retailer is the channel through whom the consumer should be supplied. This is one of the fundamental claims of the retail association movement, and if this field can be left to the retail merchant it will be a substantial gain. To this end the National Hardware Association, being representative in so large degree of the jobbing interests of the country, can lend important aid. This is especially the case because in many States one of the grievances of the retail trade is that this principle is not recognized as consistently as it should be. In some cases it has been necessary to discuss publicly the course of certain wholesale houses who have failed to meet the views of the associations in regard to the matter, but in many, perhaps most, instances, where the attention of the jobbers is called to this subject, they are generally prompt to announce their willingness to remove the cause for complaint on the part of those whose province it is to distribute goods to the consumers.

Condition of Trade.

The prevalence of severe weather has in more than one way interfered with the transaction of business during the week under review. Besides the interruption of the ordinary outdoor occupations, which has the immediate effect of diminishing the volume of business throughout the country, there has been uncertainty and delay in the movement of passengers and freight, with corresponding interference with connection by mail or telegraph. The extent to which production is being interrupted cannot as yet be definitely estimated, but it is evident that the matter is a serious one for many plants whose operations have been stopped by the high water, with injury in some cases to their outfit or manufactured products. It is not unlikely that in this way some of the mills will be put still further back in the work of filling orders, thus accentuating the difficulty in obtaining raw material or finished goods. While these influences will have a depressing effect so far as the immediate business of the country is concerned, they tend to give indirectly firmness to values and to strengthen the situation so far as the future outlook is concerned. The changes in the price of Hardware and related products are unimportant. A few goods are from week to week being advanced and the general tone is steady and confident. The subject of consolidation continues to be a trade topic in a serious or speculative way. The recent consolidations in Axes and Builders' Hardware are being canvassed in the light of the advantages thus secured by the parties whose interests are immediately affected, and the wisdom of the action taken is generally conceded. The question as to how much further in this or in other lines the movement may go is regarded with a good deal of interest by the trade, especially as it is understood that negotiations to have certain lines of Edge Tools taken in with Axes are in progress. Meanwhile the trade recognize the fact that in practically all the lines in which consolidation has been effected one of its results has been the development of competition, so that the elimination of competition by this means is apparently as remote as ever.

St. Louis.

(By Telegraph.)

The buying demand seems to be of smaller proportions the past week, and this would seem to be a most natural condition when we take into consideration the very unusual and heavy requirements that have been the marked features of the market of late. This lull seems to

be regarded more as a breathing spell than in any other way and to some jobbers will perhaps be welcome, permitting the shipping departments to catch up on orders in hand. Difficulty to secure certain lines of goods is still a bothersome point and a hard one for the trade to grapple with. The heavy department of the market has to face some changes in the price-list of Bars, but the report of the demand and inquiry is said to be very satisfactory.

Louisville.

W. B. BELKNAP & Co.—The market still continues strong, with a wonderful demand for iron and steel products. Everybody is skeptical about the propriety of any higher prices being asked, but at the same time these same people are urging forward their specifications which may be 60, 90 or 120 days old. The mills make one promise after another of shipment, and one excuse after another for failure to carry out these promises.

Certainly stocks are not accumulating. How in the world we absorb what is conceded to be the immense output is something to make us marvel. We are told of the shortage of cars, of the failure to get a supply of coke and coal, delays in transit for want of motive power; in fact, there is hardly any possible reason which may be ascribed for delay which has not been made to do double duty within the last six months. Our own diagnosis of it would be that the main difficulty is lack of motive power. If there were more locomotives available to move the cars rapidly the railroads would get the full benefit of this rapid mobilization, and one car could be made to do as much as two or three do now.

With the accession to the rolling stock of the roads, which is estimated by the New York papers to be about 12,000 new cars per day, there will soon be lack of side track accommodation. This vast increment is liable to take up so much room that it may prove to be in the way. We ourselves just received a car which was shipped from Youngstown, Ohio, on the 4th—that is, the transit from that not very distant point has taken 22 days. Under favorable conditions it would come through in five or six, possibly four. The car did not break down, and there was no special reason of that kind for its detention. It simply could not be rolled along the tracks fast enough. As the distance from Youngstown here by the route which it came, is, say, 500 miles, it would be seen that this car did not average 30 miles a day. It might have made the round trip at least twice over, if the roads had been in shape to handle it rapidly. And this is only one of many similar instances.

Of course, some time the day will come when we shall be told with that eminent air of satisfaction which is assumed at such a time that henceforth our orders will be filled promptly when received. When that time comes, we may realize that prices are well up in the scale. But anything looks reasonable when a profit may be made on it by ordinary methods of merchandising. While present conditions last nobody is complaining of first cost.

The Retail Hardware Dealers' Association of the State held their second annual convention here in Liederkranz Hall on February 25 and 26. T. James Fernley, secretary of the National Association, came from Philadelphia to deliver one of his happily phrased addresses, full of suggestion how to meet modern conditions and to say what retail men had a right to expect from the manufacturers and jobbers, also to remind them of their mutual obligations. Representatives were here to the number of between 50 and 60, scattered from Ashland to Fulton, the extreme east and west of the State. Every one expressed himself as being well pleased with the meeting, resulting as it did in the free interchange and comparison of views on the necessities of business as conditions exist to-day. *The Iron Age*, doubtless, has its more detailed reports from other sources.

The snow and ice which buried us 7 or 8 inches deep here for a month has disappeared slowly under a warm sun and gentle rains. So far the thaw has gone forward without any disaster or promise of it. A few days more when the ice gets out of the Upper Ohio we shall consider any immediate danger of a flood as past. The floods we mainly suffer from are those of eloquence in

the United States Congress, where our representative has gone so far as to describe the administration as "boot licking and truculent." Guessing at his meaning, some of his constituents assume that "truculent" is in his mind the same as truckling, but, as a matter of future safety, the formal presentation of a gilt edged dictionary is proposed.

Our own State Legislature also is in session, and we never know what is going to happen until it adjourns. It adjourned in a body at the invitation of our Commercial Club to attend a banquet here at the Louisville Hotel on the evening of the 21st, and from the expressions freely made, our legislators are more keenly alive to the necessity of encouraging the material development of the State than ever before. So it is possible that we shall have some up to date measures, which shall redound to our credit as a wealth producing State. The State is underlain with mineral wealth, but the hand of the average legislator writes on the surface, *Noli me tangere*.

Cleveland.

THE W. BINGHAM COMPANY.—The trade in General Hardware in Cleveland has been exceedingly good for the past two weeks, and orders for general assortments of Hardware are coming to us in great volume from all sections of the country. The demand is not limited to any particular lines of goods, but runs very generally through our large assortment. We note with pleasure the great volume of business coming to us in the way of House Trimmings and Builders' Supplies, indicating to us that there is going to be a large amount of building going on throughout the country; in fact, the demand is unprecedented for this time of the year.

Customers are urging us to send forward orders for Wire Cloth, Poultry Netting, Steel Goods, Lawn Mowers, &c., and as these goods have been sold at low figures they want to take them into stock promptly so as to be ready for the trade as soon as it opens up. We have been able to accommodate them in this respect, as we have accumulated a good stock of all these goods.

There is no large demand for Wire and Nails just at present, which perhaps is caused by the large number of orders that were placed early in the season or before the last advance in price, but we believe that as soon as the snow melts and the floods recede there will be plenty of business for all of us on Wire and Nails. Surely the advance agent of prosperity is still abroad in the land.

There is a good chance for advances on a good many lines of goods, which have certainly been sold at prices which are not remunerative to the manufacturer, and especially not to the jobber.

We would advise merchants to take spring goods which they bought early into stock as soon as possible, as the indications point strongly toward a shortage in some lines.

Baltimore.

CARLIN & FULTON.—Business would be greatly stimulated by good weather after the experience of last month. Long continued cold rendered our harbor ice bound, paralyzed navigation and for a while cut off all communication with such points as are ordinarily reached by our bay craft. After this came the floods of last week, which, while causing the ice and snow to disappear, have rendered the roads almost impassable and have caused no end of damage throughout the country. What a boon it would be, especially to the agricultural community, were the appropriations which go to expositions, of which the country has had a surfeit, set aside for the benefit of State roads, which would enhance the value of every piece of land in the State and relieve us from this annual trouble arising from the spring thaw.

The railroads also seem to have their troubles, which, in turn, create others. A scarcity of cars is the cry at present, in fact has been for some time, which necessarily prevents the prompt execution of orders by manufacturers and the consequent disappointment of the buyers results therefrom.

Features of the month have been the "community of interests" established by the Axe manufacturers and also between the largest two of the Building Hard-

ware concerns in the country. The former consolidation or amalgamation might have been expected, the latter was probably a surprise to the trade generally. What results will follow from the consolidations already made and those which may occur are as yet unknown, but undoubtedly they are not made with a view toward a reduction of market prices.

Present indications for general trade are that it will be good, especially after a few days of bright weather.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—In this section we have had the most severe weather that we have experienced for many years. While it has not been quite as cold as in some former years, we have had the longest spells of cold weather ever known in this locality. Our people not being used to such extreme cold weather and deep snow, it has had the effect of simply paralyzing business. The January and February trade has therefore been quite unsatisfactory. Inquiry among the jobbers here reveals the fact that they are all very much disappointed with the spring trade so far. Added to the extremely bad weather the unfavorable reports from the wheat crops have been very depressing. It has been currently reported through this section of the country that the wheat crop is a positive failure, caused by the early and continued freezes. We are now having some beautiful spring weather, and hope it will have the effect of reviving the wheat crop to some extent, as reports of this kind are usually exaggerated.

Trade has been so disappointing to the jobbers, and the salesmen have been so eager for orders, that recent advances made by the manufacturers have been ignored to a great extent. We hope that 1902 will grow better as it grows older, and that we won't have to send you many reports like this during the year.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Since our last letter, trade in the surrounding country, for several hundred miles, has suffered materially from the existing conditions during that time.

The interruption of railroad facilities, especially during the past two weeks, owing to the severe snow storms and heavy rains which have flooded the rivers as well as adjacent country, has prevented salesmen from reaching their accustomed points, and where they have been reached, they have in many instances been compelled to remain there for some days. Consequently, the volume of trade has been much reduced, and when daylight was thought visible the more recent visitation of heavy snow storms, cloud bursts and rain storms has aggravated the situation. The loss of property in the mining regions during this time has been severe. The heavy snow storms have surpassed anything experienced during the last 12 years, and these, followed by sleet, rain and warm weather, have brought disastrous results. It is therefore no wonder that the volume of trade has been greatly reduced. We cannot at this writing predict for the immediate future. Prior to this time the products of the iron and steel industries were in excess of the products of one year ago. Mining operations were in excess of what they had been for many years past, and merchants were buying with a good deal of freedom. Prices have been fair and steady, and beyond the regions visited by these disastrous conditions trade has continued fairly satisfactory in its results.

Builders' Hardware.—Those customers who are depending upon the product of the two large manufacturers who have recently consolidated have been very anxious to learn the results, and to know whether each would conduct their own business as heretofore, or whether the customers of one would be transferred to the other, or *vice versa*. It has been thought for some time that the Lock manufacturers have not been altogether in harmony either in prices or in catering to either the large, the medium or the small trade. The entire matter has been quite a subject of conversation and discussions with all jobbing houses.

Axes.—No new developments have reached the trade beyond what has already been reported, that all manufac-

turers of Axes have given the option on their plants for the term of one year. In the meantime each manufacturer is to conduct his own business on the usual plan. They have, however, agreed upon prices with all makers for equal quality and quantity of Axes. We do not vouch for the correctness of the above. It is merely a current report. It is, however, stated that no change has been made regarding the delivery to customers of second-grade Axes in proportion to the first-grade Axes that they purchase—viz.: 10 per cent. of second-grade Axes will be furnished with 90 per cent. of first-grade Axes. How manufacturers expect the jobbing trade to regulate their trade on this basis, or how they expect the retail trade to conduct their sales, has not been made known by the manufacturers. All we have heard is that 10 per cent. of low grade goods will be given with 90 per cent. of high grade goods. It has been asserted by some that possibly the manufacturer will be willing to put one low grade Axe in each box of high grade Axes, and thus solve the question for the retail buyer. Whether this is true or not is not known. We, however, for ourselves, are not likely to follow that plan. Rather than follow that plan or adopt the other plan of selling a man 10 per cent. of cheap or low grade Axes with 90 per cent. of high grade Axes, we prefer allowing 4½ cents per dozen on each box of Axes that customers may purchase, and let each customer buy his chromo or sell his rights for others to buy a chromo, as he may prefer.

Wire Nails and Barbed Wire.—There has been no change in the market prices of these goods. The trade are not buying as liberally as they were 30 days ago. That, however, is but natural, owing to the conditions of the weather in many districts throughout the country. It may enable the manufacturers to catch up even on their sales, on which, we understand at this writing, they are far behind.

Owing to the conditions of the country the collection department of the business has been seriously interfered with.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—There is no occasion at present to change optimistic views, as expressed in our late letters, both as regards present and future business in the Pacific Northwest. The winter is practically past and has been favorable both for stock and farm operations. We can only hope for a continuation of present conditions during 1902 to be able at the close to chronicle a year of progress unequalled in the past.

In January our port stood first in wheat exports in the United States, and February bids fair to equal its predecessor.

Large transactions in timber lands are still the order of the day, bringing deposits to our banks, already gorged with unemployed funds. So far a healthy advance and demand exists in real estate. The danger of speculation, owing to the lack of legitimate investments, overhangs the future.

Boston.

BIGELOW & DOWSE COMPANY.—The past three days we have experienced the first indications of the approaching spring. A temperature of 50 to 60 degrees and heavy rains have melted the snow and ice on the hills and the mountains, causing great freshets and much damage. If the present weather denotes the end of winter we shall have an early spring, which would stimulate a large sale for seasonable goods. Already the manufacturers of Steel Goods, Shovels, Poultry Netting, Wire Cloth and Screen Goods have notified the trade that their production is oversold and that prompt delivery on new orders is impossible. From manufacturers we have the excuse for tardy deliveries that it is impossible to get the raw material ordered months ago. As the situation presents itself there is to be a large demand for all kinds of Hardware and a short supply. One of the largest manufacturers of Bicycles reports that the sale the first six months this year exceeds the number sold the whole of the preceding year. The sample orders already shipped to the New England trade are larger than last year, and if the dealers are not handicapped by successive rains

during the Bicycle season, as they were last year, there should be a good sale.

NOTES ON PRICES.

Wire Nails.—The demand for Wire Nails continues active, while the scarcity of steel and the insufficiency of transportation facilities have interfered in getting prompt deliveries. More recently high water has interfered seriously with the production of Nails at some of the mills. Stocks, which fortunately are not large, are damaged, and in some cases the Nails will require re-finishing. The market is represented by the quotation in carload lots to jobbers of \$2.05, and to retailers of \$2.10, f.o.b. Pittsburgh, plus actual freight to destination. These differentials are not always observed by outside mills.

New York.—An improvement in the demand for Wire Nails is reported at this point. The market shows increased firmness. The market is represented by the following quotations: Small lots from store, \$2.25 to \$2.30; carloads on dock, \$2.18 to \$2.20.

St. Louis, by Telegraph.—Wire Nails continue in very good demand in this market, and prices hold firm. Small lots from store are quoted at \$2.35.

Pittsburgh.—A meeting of the outside Wire Nail mills was held in Chicago on Thursday, February 27, but no change was made in prices. We note a heavy demand for Wire Nails, and mills are greatly hampered in making shipments on account of car shortage. It is likely there will be more or less trouble from this source for some months, and it will have a good effect in sustaining the market. We continue to quote Wire Nails at \$2.05 to \$2.10 in small lots f.o.b. maker's mill.

Cut Nails.—There is a fair demand for Cut Nails. The meeting of the Cut Nail Association, held March 4, advanced prices 5 cents per keg for the month of March. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	\$2.00
Less than carload lots.....	2.05

New York.—Cut Nails are meeting with a comparatively light demand at this point. New York quotations for carloads and less than carload lots are as follows:

Carload lots on dock.....	\$2.13
Less than carload lots on dock.....	2.18
Small lots from store.....	\$2.25 to 2.30

St. Louis, by Telegraph.—The demand for Cut Nails is light and for small lots from store \$2.30 to \$2.35 is quoted.

Pittsburgh.—There is a good demand for Cut Nails, but a good deal of difficulty is experienced by the mills in getting Steel to make Nails and also in getting cars to ship their product. We quote Cut Nails at \$1.95, base, in carload lots, and \$2 in less than carload lots, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination.

Barb Wire.—The tone of the Barb Wire market is firm and demand continues heavy. Quotations for round lots are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, \$2.60; Galvanized, \$2.90; less than carload lots, Painted, \$2.65; Galvanized, \$2.95.

St. Louis, by Telegraph.—The demand for Barb Wire is still of very good proportions. Jobbers quote in carload lots \$2.95 for Painted and \$3.25 for Galvanized.

Pittsburgh.—We note a continued heavy demand for Barb Wire and the tone of the market is very firm. Indications are that spring trade will be heavy, and will be large enough to take the output of Barb Wire by the mills as fast as it is made. There is more or less trouble over shortage of Steel and cars. We quote Galvanized Barb Wire at \$2.90 in carloads to jobbers and Painted at \$2.60, terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh. For small lots higher prices are charged.

Plain Wire.—Plain Wire continues in heavy demand, and, notwithstanding the increased capacity for its man-

ufacture, mills are kept busy. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

Base sizes.	Plain.	Galv.
To jobbers in carload lots.....	\$2.00	\$2.40
To jobbers in less than carload lots.....	2.05	2.45
To retailers in carload lots.....	2.10	2.50
To retailers in less than carload lots.....	2.20	2.60

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

6 to 9.....	Base.....	\$0.40 extra.
10.....	\$0.05 advance over base.....	.40 "
11.....	.10 " " " ".....	.40 "
12 and 12½.....	.15 " " " ".....	.40 "
13.....	.25 " " " ".....	.40 "
14.....	.35 " " " ".....	.40 "
15.....	.45 " " " ".....	.75 "
16.....	.55 " " " ".....	.75 "
17.....	.70 " " " ".....	1.00 "
18.....	.85 " " " ".....	1.00 "

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

St. Louis, by Telegraph.—Trade is good, and jobbers quote No. 9 Plain Wire at \$2.30 and Galvanized \$2.70, with the usual advance for other sizes.

Pittsburgh.—Demand is large, and the mills are taxed to utmost capacity to get out Plain Wire as fast as wanted. No change was made in prices at the meeting of the outside Wire mills, held in Chicago, February 27. We quote Plain Wire at \$2 and Galvanized \$2.35 in carloads, f.o.b. Pittsburgh, usual terms. For small lots from \$2 to \$3 a ton higher prices are charged.

Cordage.—Rope buyers are generally confining their purchases to small lots, pursuing their former policy owing to high prices and to their uncertainty as to the future of the market. Business shows some improvement at the approach of spring. Sisal Rope is quoted on the basis of 7-16-inch and larger from 9½ to 10 cents per pound, and Manila Rope, on the same basis, at 13½ cents, with a rebate of ¼ cent per pound for large quantities.

The American Wringer Company.—In connection with the issuing of their new catalogue, to which reference is made in another column, the American Wringer Company, 99 Chambers street, New York, are sending out a new price-list giving net prices on their entire line. As representative of the goods of the company we give the following prices on their leading machines most generally carried in stock by the trade throughout the country. These prices apply to case lots, which will be delivered f.o.b. on cars in Woonsocket, R. I.; Auburn, N. Y.; New York City, and Chicago; terms 60 days, with 2 per cent. discount for cash in 10 days and 1 per cent. for cash in 30 days:

Royal.		Size of Rolls.	
10 x 1½.....	\$26.00	10 x 1½.....	\$30.60
11 x 1½.....	30.00	11 x 1½.....	35.00
12 x 1½.....	34.00	12 x 1½.....	40.00
Universal, Novelty and Keystone.			
10 x 1½.....	\$21.00	10 x 1½.....	\$24.50
11 x 1½.....	24.50	11 x 1½.....	29.00
12 x 1½.....	28.00	12 x 1½.....	33.50
Empire.			
10 x 1½.....	\$24.00	11 x 1½.....	\$32.00
11 x 1½.....	27.50	12 x 1½.....	37.00
12 x 1½.....	32.00	12 x 1½.....	48.00
Imperial, Columbia.			
10 x 1½.....	\$18.00	10 x 1½.....	\$21.00
11 x 1½.....	21.00	11 x 1½.....	24.75
12 x 1½.....	24.00	12 x 1½.....	28.50
Eureka, Superior and Gem.			
10 x 1½.....	\$18.00		
11 x 1½.....	21.00		
12 x 1½.....	24.00		
Rival and Household.			
10 x 1½.....	\$16.00	10 x 1½.....	\$18.50
11 x 1½.....	18.50	11 x 1½.....	21.75
12 x 1½.....	21.00	12 x 1½.....	25.00
Princeton, Ideal and Crescent.			
10 x 1½.....	\$16.00		
11 x 1½.....	18.50		
12 x 1½.....	21.00		
Daisy.			
10 x 1½.....	\$15.00		
11 x 1½.....	17.50		
12 x 1½.....	20.00		

Nuts.—An advance was made by the manufacturers on the 25th ult. in the prices of Cold Punched and Hot Pressed Nuts. Present published prices are as follows:

	Off List.
Cold Punched Plain Blank Square Nuts.....	4.80
Cold Punched Plain Blank Hexagon Nuts.....	5.00
C. T. & R. Blank Square Nuts.....	5.00
C. T. & R. Blank Hexagon Nuts.....	5.50
Cold Punched Plain Tapped Square Nuts.....	4.60
Cold Punched Plain Tapped Hexagon Nuts.....	4.80
C. T. & R. Tapped Square Nuts.....	4.80
C. T. & R. Tapped Hexagon Nuts.....	5.30
Hot Pressed Nuts, Square Blank.....	5.10
Hot Pressed Nuts, Hexagon Blank.....	5.50
Hot Pressed Nuts, Square Tapped.....	4.90
Hot Pressed Nuts, Hexagon Tapped.....	5.30

Binder Twine.—Eastern manufacturers of Binder Twine have generally announced prices on a basis of 10¼ cents for less than carload lots. Some makers, however, are quoting ¼ cent more. It is understood the machine manufacturers have not yet made prices, and are taking orders based upon prices to be made at some future time. Demand thus far is light. Quotations are as follows, f.o.b. New York, with ¼ cent per pound rebate in carload lots:

	Per pound.
Sisal	10¾c.
Standard	10¾c.
Manila	13¼c.
Pure Manila.....	14¾

Some manufacturers are guaranteeing prices to May 1, date of shipment.

Glass.—Some of the New Jersey Glass factories have shut down, being unwilling to pay the advance in wages which has been accorded workmen in other factories. Other of the New Jersey plants are paying the advance. The Independent Glass Company announce that they intend to run their factories until June 15, and possibly until June 30, and to start up again September 1. The American Company will possibly continue in blast as long as the Independent Company do. Both the large and small trade, as a rule, are ordering only sufficient Glass for immediate needs, owing to their fear of lower prices later in the season. The following are the quotations of the Jobbers' Association:

	Discount.
From store	90 and 10 %
F.o.b. factory, carload lots:	
Single strength	90 and 10 and 7½ %
Double strength	90 and 10 and 10 %

Paints and Colors.—*Leads.*—Orders for March and forward delivery, for White Lead in Oil, are reported to be on the increase, resulting in a somewhat steadier market. It is understood that the majority of large dealers covered their requirements for spring, and that a satisfactory demand is anticipated. Quotations are as follows: In lots of 500 pounds or over, 6 cents per pound; in lots of less than 500 pounds, 6½ cents per pound.

Oils.—*Linseed Oil.*—Weather conditions during the week have interfered with the shipping and consumption of Oil to a considerable extent. There is a limited demand at this point, and it is understood that a number of large buyers are supplied with Oil for some time to come. Seed has been irregular during the week, but the local Oil market is firm at the following quotations, according to quantity: City Raw, 63 to 64 cents; out of town Raw, 62 to 63 cents per gallon.

Turpentine.—The local market has ruled quiet during the week, buying being confined to immediate requirements. Receipts in the Savannah market have been light, and quite a quantity of Turpentine has been taken for export. The local market is firm at the following quotations, according to quantity: Southern, 44½ to 45 cents; machine made barrels, 45 to 45½ cents per gallon.

UNDER date of March 1 W. Edgar Pruden, 861 and 863 Eighth avenue, New York, announces that he has incorporated his business under the style of W. E. Pruden Hardware Company. The entire business of the old concern has been turned over to the corporation, the new company assuming all contracts and receiving all the assets of the firm. All accounts due the firm of W. Edgar Pruden are payable to the new corporation, and all debts of the former will be paid by Mr. Pruden. The management of the business remains unchanged.

The officers of the company are as follows: W. Edgar Pruden, president; A. A. Furman, treasurer, and G. N. Shafer, secretary.

THE WITTE HARDWARE COMPANY.

AT a meeting of the stockholders of the Witte Hardware Company of St. Louis, held on February 20, it was decided to increase the capital stock from \$150,000 to \$300,000, and this has been fully paid in. They will largely increase their facilities in order to better take care of their enlarging business, which they state is gaining at a rapid pace. They have in preparation a new catalogue, which will contain 1600 pages, being just double the size of the previous ones. It will be ready for distribution shortly.

HERE AND THERE.

An Illinois merchant, whose show windows are always attractive, writes:

Windows should be kept free from dirt and dust. The glass should be polished every day and the arrangement kept in order at all times.

A progressive Minnesota dealer who gives careful attention to show window advertising says:

I use French tissue paper for my background, and before putting in the paper I crinkle it up between my hands. This gives the paper a soft appearance.

The show window display, like the newspaper advertisement, should be changed frequently. A long standing display will bring in business but little better than a long standing newspaper advertisement. Like the newspaper advertisement, the show window should be in charge of one person who will give it careful attention. Most Hardware dealers neglect their windows and do not get as large returns from them as is possible, but there is evidenced a strong tendency among the trade to avail themselves of this cheap and effective means of advertising.

A progressive Wisconsin merchant gives the following advice:

Have small coin envelopes with your advertisement on to put Tackle into. If a fisherman leaves the envelope on the bank of some lake or river or at the camping resort some one will certainly pick it up and see your advertisement. It is a good scheme; try it.

D. N. Clark, Shelton, Conn., recently filled one of his large show windows full of Universal Meat Cutters marked at 88 cents each. In ten days all in the window were sold with the exception of three machines. Mr. Clark says that the quantity of goods shown and the low price that was clearly marked brought the business.

ALBANY HARDWARE & IRON COMPANY, Albany, N. Y., who are about to refit the large premises recently purchased by them, are desirous of learning the names of firms having modern premises fitted up to date for the Hardware business, in order that they may visit such establishments and see if there are some improvements which might be adopted in refitting their store. Any addresses sent them by the trade will be thankfully acknowledged. At the annual meeting of the company, held Monday, March 3, the directors and officers of the previous year were re-elected—namely: Chas. H. Turner, president; Jas. K. Dunscomb, treasurer; Wm. B. Wackerhagen, secretary, the remaining directors being George I. Amsdell, Peter Kinnear and Seth Wheeler.

DIAMOND STAMPED WARE COMPANY, Detroit, Mich., announce that W. S. Canright has been appointed secretary and manager of the company, vice C. D. Milne, who has resigned the position.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, {
NORFOLK ST., LONDON, W. C. }

The Trend of the Trade.

ALTHOUGH the volume of business actually transacted does not show much expansion, yet during the past week a more cheerful tone has prevailed. This is doubtless due to the rumors of an approaching settlement of the South African War. But then these rumors crop up every now and again, with always precisely the same result. The intervention, however, of the Dutch Government leads us to hope that perhaps some settlement may be arrived at. Indents from South Africa are accumulating in number and volume. Trade with Australia and New Zealand continues satisfactory, but there is a slight lull in orders from China and the far East, which has been more than balanced by an increased volume of trade from South America. A number of the home travelers have now gone on the road once more, and Hardware orders have come in rather more freely than was anticipated. It appears that a number of ironmongers, prior to Christmas, let their stocks run unusually low, and they have now had to fill up their shelves. Orders for galvanized roofing have come in during the past week, of sufficient value to keep the works going for some weeks to come. Makers of tank, gasometer, bridge and other constructive material are busy, and one result of the revival of trade in South Africa has been the giving out of a large order for Belows and Portable Hearths. The builders' ironmongery trade is slightly more hopeful, and large orders have recently been received for shipping tackle. The brass founders, too, are a little busier, and the Edged Tool trade continues good. There has been a distinct appreciation in plain sheets and, galvanizers are now feeling an upward movement. They are indeed endeavoring, with some measure of success, to re-establish prices upon the pre-Christmas basis. They are receiving at the present time \$55 per ton for 24-Gauge Corrugated, less 2½ per cent., f.o.b. Liverpool. In South Staffordshire Black Sheets are selling at \$37.50 for doubles, less 2½ per cent. delivered at works or railway. The Sheffield Cutlery trade continues exceedingly dull, and there does not seem at the present moment to be a silver lining to the black cloud.

Plated Ware.

The attention of American manufacturers should be directed to the regular and increasing business done in exports by British Plated Ware makers. During the last week the following shipments have gone out:

To Auckland, New Zealand.....	\$175
Bombay	675
Brisbane, Queensland.....	1,150
Calcutta	500
Christchurch, New Zealand.....	170
Colombo, Ceylon.....	630
Gibraltar	50
Hobart, Tasmania.....	175
Launceston, Tasmania.....	300
Perth, West Australia.....	25
Sydney, New South Wales.....	5,000
Wellington, New Zealand.....	1,000

As these shipments all took place in one week, and as Plated Ware carries a good profit, it is clearly a business worth cultivating.

Enameled Ware in England.

Last week I drew attention to a controversy now taking place in the Hardware trade of this country as to the advantages of good Enameled Ware and the deleterious effects of inferior qualities. The discussion still continues. The Cannon Iron Foundries, Limited, write that, besides the risk arising from enameled lined articles of unsatisfactory quality, there is another prolific source of food contamination in the use of cooking utensils, such as common Fry Pans and Tea Kettles, which are manufactured in enormous quantities, lined with an alloy of tin and lead, but with the latter to a very large extent predominating. This is, of course, a very serious statement to make, but the company sign their own name to it. It must be remembered also that large quantities of Enameled Ware are sold to the public institutions of this country. A friend of mine, who has

been in this trade for 20 years, has been good enough to write me something of his experience. He says:

The ironmonger who stocks the cheap, badly glazed Enameled Ware runs a grave risk, and on no account when tendering to a public institution should include it. In the event of an accident he will be held responsible morally, if not legally; his reputation will be damaged and a scare created. When sending in his specification he should set out in good, bold writing that what he is quoting is guaranteed from anything deleterious. The German manufacturer who supplied my old firm with the Enameled Ware which I introduced all over this country not only gave them a guarantee of purity, but assured them that if he produced anything in his manufactory likely to be injurious to the health of his countrymen he was liable to imprisonment and to have his property confiscated. An important question arises here: Who is flooding the market with the tea shop and bazar rubbish? If German, it is fair to assume that the penalties I have quoted do not apply to export goods. If English or Scotch, they cannot possibly give the guarantee to their customers without imperilling themselves. Prior to the glaze being put on the enamel is porous, and unless these small pores are filled up by the glazing they retain portions of the last food or chemical used in them, however well washed. So you will see how absolutely necessary it is for the articles to be well glazed, and this process being the most costly of all in the manufacturing, cheapness can only be brought about by lack of quality. The English Enameled Ware trade is in its earliest infancy and cannot possibly help progressing, as slowly but surely it will squeeze even the cheap Tinware out when the British makers have got the right plant for making the blanks. Many of the so-called English lists of Enameled Ware are mainly made up of foreign goods. Further, this ware will supersede tin. To illustrate a case, we have had in daily hard use at home three Enameled German Saucepans for upward of ten years, and, as far as one can judge, they will last a few more years. How many tin ones, however good the quality, should we have worn out in the same time? The bulk of the Tin Plates made now are positively useless for wear. If an English manufacturer could make me certain shapes I could enumerate in Enameled Ware I could command sales by just putting the articles before my customers and allowing them to appeal to their common sense.

As it has been admitted all round that the American Enameled Ware is at the present time the best made, American makers should use this discussion by way of an advertisement, which I am convinced would bring them good results.

Tanks as Packing.

Under the new Australian tariff packages have to pay duty in addition to the goods they contain. A useful tip in this connection is to use tanks for water storage instead of wooden cases and casks. The tank makers in South Staffordshire are at the present moment overdone with orders for this reason. It has sometimes been asked why most tanks have an ugly bung hole in the lid. They have probably been used as packages. A Wolverhampton firm have got over this difficulty by using a neatly fitting lid fastened with screws and nuts, so that the ugly bung hole is dispensed with.

Exhibition at Prague.

It will be within the recollection of your readers that a few months ago I gave some account of a visit I paid to Austria, particularly Vienna and Prague. I am glad now to announce that an exhibition will be held at Prague, from May 15 to 19. The official programme has just been issued by the Managing Committee. The exhibition is divided into the following groups:

1. Sale department of Agricultural Machines and Implements.
2. Trade and industrial products.
3. Competition of Threshing and Cleaning Machines at work.
4. Pedigree cattle, horses, pigs, sheep and goats.
5. Fowls and birds.
6. Motors for agricultural and petty industries.
7. Articles used in agriculture, amelioration products and agricultural engineering.
8. Forestry and the chase. Any desired information may be obtained by addressing the *Ausstellungsausschuss der landwirthschaftlichen Central-Gesellschaft* at Prague, Austria.

To Push Trade with Peru.

The national mining and agricultural societies of Lima, Peru, have established bureaus of information, and for this purpose they are desirous of obtaining catalogues and price-lists. All sorts of Hardware, Mining Goods, Agricultural Implements, are in growing request.

Duty Free.

I have several times referred to the growing opportunities offered to American exporters in developing their trade in the Mediterranean and the Levant. By way of encouraging this trade I am glad to be able to give particulars of Farming Implements, &c., which the Ottoman Empire (Turkey) now admit free of duty:

Plows of all kinds.
Machines for cutting and binding sheaves.
Machines for mowing grass.
Machines on wheels, drawn by animals, for gathering grass or grain.
Rakes, worked by animals.
"Cannon" machines, drawn by animals, for turning, airing and drying hay.
Presses for making hay into bales.
Machines, drawn by animals, for spreading manure.
Harrows of all kinds, drawn by animals.
Hoeing machines, drawn by animals.
Threshing machines worked by steam, water or animal power.
Locomobile engines for driving threshing machines.
Machines, worked by animal power, for driving threshing machines.
Plows driven by steam.
Smooth or toothed rollers of all kinds, drawn by animals, for rolling ground or for breaking up clods.
Iron scarifiers, drawn by animals, for breaking up clods.
Iron cultivators, drawn by animals.
Sowing machines, drawn by animals.
Sifting machines for cleaning produce, worked by steam, water, hand or animal power.
Sifting machines for separating seed grain, worked by steam, water, hand or animal power.
Machines for granulating maize, worked by steam, water, hand or animal power.

THE AMERICAN WRINGER COMPANY'S NEW CATALOGUE.

THE American Wringer Company, 99 Chambers street, New York, have just issued a complete general catalogue of 88 pages, illustrating and describing in detail the great variety of Horse Shoe Brand Clothes Wringers, Mop Wringers, Clothes Mangles, Toy Wringers, Clothes Dryers, Folding Benches for Wash Tubs and the different goods of their comprehensive line. The illustrations are printed in various tints, and the book has an illuminated cover. Particular attention is called to the ball bearing features and the quality of the rubber used in the rolls. The catalogue is an exceptionally complete one, and very artistic and attractive, and, accompanied as it is with a new price-list of net prices on case lots, will be regarded with especial interest by the trade.

HORSE TAIL RAZOR STROPS.

CATTARAUGUS CUTLERY COMPANY, Little Valley, N. Y., have arranged to get the entire stock of horsetails from all the horse hides marketed in New York and its vicinity. An agreement has also been perfected with a tanning concern whereby these tail pieces are tanned according to a prescribed formula, the Cattaraugus Cutlery Company putting the product on the market in the form of genuine Horse Tail Strop, in which, in lieu of the ordinary handle at one end the stub of the tail is left. This is partially to obviate any uncertainty about their being the real thing, it being charged that strops made of various inferior leather are often offered as Horse Tail Stropps. The manufacturers say this make of Stropps will have a superior cutting quality and will put a Razor in shaving condition in a short time.

THE ROBERTSON MFG. COMPANY, Buffalo, N. Y., have equipped their factory with modern machinery for the

manufacture of a line of hand, foot and power Hero Emery Grinders, also what they claim as the only germ proof Automatic Cleaning Water Filter, made in sizes for homes and public buildings, and other specialties. They will be pleased to receive inquiries from the Hardware, plumbing and metal trades, as well as from carpenters and builders.

LORING COES & CO., INCORPORATED.

IN our last issue reference was made to the consolidation of the Coes Wrench Company with Loring Coes & Co., Incorporated, through the purchase by Loring Coes of the interests of his nephews, John H. Coes and Fred. L. Coes in the Coes Wrench Company. At a meeting of the corporation of Loring Coes & Co., on the 1st inst., the following officers were chosen: Loring Coes, president and treasurer; Frank L. Coes, secretary; directors, Loring Coes, Frank L. Coes and F. W. Blackmer. Frank L. Coes has not previously been connected with the Coes Wrench Company, but has been vice-president and manager of Loring Coes & Co., makers of Machine Knives, since their incorporation in 1899.

TRADE ITEMS.

THE space occupied by the Peters Cartridge Company, Cincinnati, Ohio, at the Boston Sportsmen's Show is very attractively arranged. It is draped with maroon cloth, and the most conspicuous object is a magnificent painting, showing an officer's felt hat hung over a belt containing Cartridges, to which is attached a holster containing a Colt Army Revolver. Beneath the holster is the wonderful record target made by Capt. C. S. Richmond of Savannah, Ga., which is made up of 100 shots counting 918 points. This target was shot at a range of 50 yards, and the location of each shot is shown. Beneath the target on a table is an open box of Peters Cartridges, while scattered about are Cartridges and exploded Shells. The whole is reproduced in colors, and is realistic to a marked degree. This target was made with Peters Cartridges, and as a souvenir of the event the company had the painting made. It is 36 x 18, mounted on a green mat and framed in a beautiful gold frame and surrounded by electric lights. The exhibit is in charge of I. H. Keller, the Eastern representative of the company, assisted by T. H. Keller, Jr., and others.

ON April 1 the offices of the Standard Chain Company will be removed from the First National Bank Building to the seventh floor of the Frick Building, Pittsburgh.

THE LESLIE HARDWARE COMPANY of Sharon are erecting a \$12,000 brick block, to which they will move their Hardware and plumbing establishment.

A RECENT issue of the Lockport Journal contains a sketch of the Boston & Lockport Block Company, Boston, Mass., and Lockport, N. Y., presenting also a portrait of M. H. Tarbox, the treasurer and general manager of the company, under whose careful and able supervision the business has increased to its present large proportions. Mr. Tarbox has been identified with the business for nearly 30 years. The output of the two factories covers everything in the Tackle Block line. Among the specialties made in Lockport besides the full line of Blocks are Trucks, Faucets, Mallets, Car Pushers and Wagon Jacks. The specialties of the Boston plant are Diaphragm Pumps, Differential Hoists and Blocks and rigging for ocean vessels.

THE WATERBURY BRASS COMPANY, Waterbury, Conn., report a large increase during the past month in orders received from the Hardware manufacturers. This seems to indicate a greater activity in Hardware circles, and also that the efforts put forth by this company in catering to this particular trade are appreciated. The company, with their recently enlarged facilities, are now endeavoring to make a greater specialty in this line of their production, and on receipt of inquiries will be pleased to submit samples and give further particulars.

Kentucky Retail Hardware and Stove Dealers' Association.

THE second annual meeting of the Kentucky Retail Hardware and Stove Dealers' Association was held in Louisville on the 25th and 26th ult. The meeting was held in Liederkrantz Hall. The morning session on Tuesday was consumed in enrolling new members, payment of dues and a general introduction. Most of the jobbers of Louisville and a number of manufacturers both in and out of the city were represented.

Members Present.

The following members were in attendance:

Wm. Hinkle, Louisville.
W. T. Chilton & Co., Campbellsburg.
J. S. Ogden & Bro., Ashland.
M. P. Lancaster, Versailles.
Dehler Bros., Louisville.
Korb Hardware Company, Louisville.
Wm. Stockhoff, Louisville.
W. H. Hill, Louisville.
Chas. Ramser, Louisville.
J. H. Murphy, Louisville.
Wm. F. Shaber, Louisville.
Chas. W. Shott, Louisville.
Jos. C. Kirchdorfer, Louisville.
Geo. Dehler, Jr., Louisville.
Jno. Fisher, Louisville.
Albrecht & Helck, Louisville.
Ben F. Vogt, Louisville.
Knapp & Co., Louisville.
Geher & Son, Louisville.
Paul Wagner, Louisville.
John Herz & Son, Louisville.
Johnson & Mahan, Lawrenceburg.
J. L. Malin, Vine Grove.
Geo. B. Minary, Versailles.
Van Deren Hardware Company, Lexington.
P. C. Sawyer & Co., Frankfort.
A. Steittler, Jr., Owensboro.
Thomas Shacklett Hardware Company, Fulton.
P. Koenigstein & Son, Eminence.
C. D. Salyers, Carrollton.
Jno. C. Frederick, Owensboro.
J. M. Stone & Bro., Sturgis.
Kee R. McKee, Cadiz.
J. G. Mallon, Harrodsburg.
Oldham Hardware Company, Mt. Sterling.
Chenault & Orear, Mt. Sterling.
Von Grunigan & Simpson, Nicholasville.
C. R. Orem & Co., Campbellsburg.
Brother & Co., Owingsville.
E. L. & A. T. Byron, Owingsville.

Manufacturers and Jobbers.

Some of the manufacturers and jobbers represented were:

E. C. Atkins & Co., Indianapolis.
Robeson Cutlery Company, Rochester.
Follansbee Bros. Company, Pittsburgh.
Fischer-Leaf Company, Louisville.
W. B. Belknap & Co., Louisville.
Terstegge, Gohmann & Co., New Albany, Ind.
Bridgeford & Co., Louisville.
J. M. Robinson & Co., Louisville.
B. F. Avery & Sons, Louisville.
Stratton & Terstegge, Louisville.
The Hart Hardware Company, Louisville.
The Todd-Donigan Iron Company, Louisville.

OPENING OF THE CONVENTION.

The convention was called to order by Geo. P. Dehler, Jr., who made the following address:

President's Address.

In addressing you the second time as president of the Kentucky Retail Hardware and Stove Dealers' Association I do so with a lighter heart and with less misgivings than when I stood before you at Lexington a year ago. Then we had only begun our work of organization, and the future did not look nearly as encouraging as it does to-day.

Our secretary's report will show that we have 52 members to-day, representing 15 towns throughout the State. Judging from the letters of encouragement received from nonmembers in the last few days our membership will be increased to 100 or more within the next 60 days.

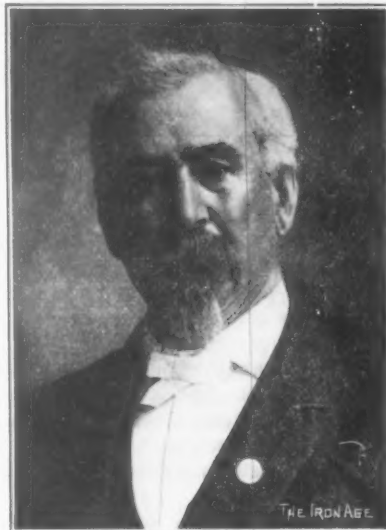
Gentlemen, you owe it to yourselves to induce as many of the retail Hardware merchants in your own town to join as you possibly can. The stronger we become the more we can accomplish.

ORGANIZATION IS THE ORDER OF THE DAY.

and looking over the Hardware field we find two of the three classes strongly organized—namely, the manufacturer and the jobber. Why not the retailer? Upon whom falls the hardest task of distributing the wares made and sold, who takes the greatest risks, and gets the poorest pay for his money and labor expended?

Yet some men can never see any good in anything that does not bring them an immediate profit. They want the secretary of the association to show them where and how they can get \$10 for their \$4 dues.

Let us get together as one man and do something, and continue doing something until we have accomplished our purpose or know the reason why. If one resolution fails to bring about the desired result resolve



W. P. OLDHAM, President.

again, and keep on resolving until we have found the correct resolution.

One drop of water continually dropping on one particular spot will eventually make a deep impression upon the hardest object. Granted that some of our manufacturers are hard objects to tackle, yet persistent drops of complaints, grievances and kicks will finally pierce them.

We have already made an impression. The eye of the manufacturer, the jobber, the catalogue house, the department store is constantly directed toward us, watching and waiting results.

JOBBERS RESPONSIBLE.

In my mind the catalogue house and the department store are the greatest evils we have to combat with. I do not think it is necessary to go into particulars to describe their methods of doing business. Yet it may be of interest to some of you present here to-day to know that the catalogue houses carry a very small amount of goods compared with the amount of business done. And why should they when the jobber is willing to carry it for them?

Perhaps it is well for you to know that in this very city, the metropolis of your State, there exists a catalogue house who distribute their prices to your very next door neighbor. Did you ever stop to think where they bought their goods? I will tell you where they buy some of them. From the very jobber of whom you are

buying goods to-day or may buy goods to-morrow. Think of this seriously.

It is not my intention to discourage the retailer from buying his wares from the jobbers of Louisville; far from it. We want to keep the trade within our boundaries as much as possible. We still have jobbers who will not sell their goods to catalogue houses or department stores under any consideration nor at any price.

When you enter a wholesale house during your visit in Louisville this week, no matter what you are about to buy, ask for the manager of the establishment and put



GEO. DEHLER, JR.

this question to him point blank: Do you sell catalogue houses or department stores? Then watch the expression upon his face, get his answer, form your own conclusion and act accordingly. Ask his salesman who calls upon you the same question.

If you are mailing an order, no matter to whom or for what, put the question, and before six months have elapsed you will have done much to stop this business done by jobber and manufacturer, who has never stopped to think of the injury they are doing to you, and consequently to themselves.

I will not be so hard upon the jobber in this address, for we all know he has troubles of his own, and I believe the conservative and less grasping ones are realizing the error of their ways and are willing and aiming to mend them. They must learn that the retailer is their only friend, and without him they have little chance of existing as such.

It is not my intention at this time to touch upon every subject that may come up before this meeting. You know best your grievances as they exist, and I will say that this is the place and now is the time to make the confession.

Gentlemen, before closing I will thank you for your kind attention to this, my feeble effort at speech making. Our secretary will enlighten you somewhat as to the work done in the last 12 months. In conclusion I will say that the Louisville retail Hardware and Stove dealers have invited us to join them in a smoker to be given in the basement of this building this evening at 8 p.m., and I hope that all of you will be in attendance. Let our social relations be pleasant ones, so that when we return to our homes we will take with us not only profitable, but also enjoyable recollections of this, our second annual meeting. Let us tell our neighbors who stayed at home what a profitable and pleasant time was had, so that they may be tempted to be with us the next time.

May you one and all leave for your place of business feeling that you have been well repaid for the time and money spent in attending this meeting, and may every member here to-day begin to-morrow to increase our membership until every Hardware and Stove man in the State of Kentucky is with us.

Secretary Paul Wagner then read his report as secretary, as follows:

Secretary's Report.

In presenting to you this, my second annual report as secretary of this association, I shall, in as few words as possible, try to bring before your mind the work that has been done by your honored servant within the last 12 months.

On February 12, 1901, when the first annual meeting of this association was called to order at Lexington, we had 33 members enrolled. Of this number 25 were from Louisville alone. Before the meeting adjourned we had secured 11 new members, seven of them from Lexington. Since then we have enrolled eight more names to the list, making a total membership to-day of 52, representing 15 towns in the State.

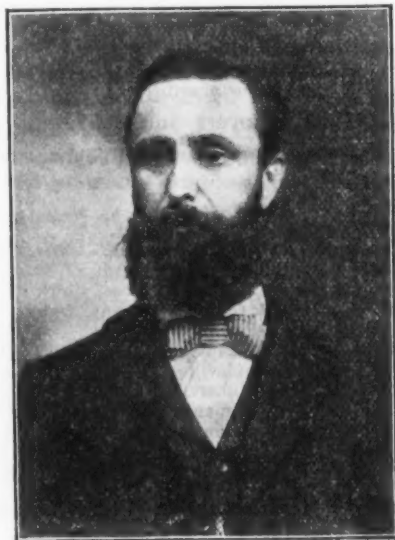
It has been the ambition of the secretary to increase the membership to 100 within 60 days of this meeting. And I believe, with your assistance, it can be done. From correspondence received from various retail dealers throughout the State it would appear that they are finally awakening to the realization of co-operative action.

GRIEVANCES.

During the year three written grievances were brought to my notice by members against certain jobbers. The jobbers showed a willingness to adjust the matter satisfactorily, and, so far as I know, did so. I will explain more fully the actions taken on both sides, on another occasion, so that all the members may form an idea of what is being done by our association. Some of our members who were requested to help the secretary in securing new members did so, and either directly or indirectly caused many new members who are here to-day to be present. This is as it should be. May the good work go on.

Besides mailing to every retail Hardware and Stove dealer in the State whose name I could get (some 600 in all) a circular letter in November, and later the same number in February, I mailed to each member of this association in December a list of names for a purpose with which you are all acquainted.

It also became my duty to answer 47 letters written



PAUL WAGNER, Secretary.

by retail merchants and members, 18 letters from secretaries, &c., of other State associations, 17 letters from trade papers, and four letters from manufacturers. From this the members may see that the secretary's lot is not just a happy one. Yet we do feel very good when we see some results at least, and a cheering letter from a member often lightens our labor considerably.

With an increased membership, and consequently a more satisfactory treasury, we think that much more can be accomplished in the future.

READING THE TRADE JOURNALS.

I would particularly call the attention of the retail dealer to advantages derived from reading one or the other of the various really good trade papers published. The subscription amount is so small that any dealer can afford to subscribe. They contain much that is of value to the retail Hardware merchant, especially the reports of the different Hardware associations throughout the United States, and also the labors of the secretaries are lessened by the member being posted through such a medium.

Before closing I would ask of all of you to back up the association, not alone with your yearly dues promptly paid, but with such influence as you may have and can exert to extend its membership, so that the State of Kentucky may rank foremost in members and enthusiasm.

W. P. Lewis' Remarks.

After reports of previous standing committees the members had the pleasure of listening to an address from W. P. Lewis of New Albany, Ind., president of the National Association. Mr. Lewis reviewed the work



U. S. SHACKLETT, Second Vice-President.

done by other State associations, especially the Indiana Retail Hardware Dealers' Association, of which he is also president. He called attention to the influence being exerted by the National Retail Hardware Dealers' Association, and how it was being felt by the manufacturer and jobber throughout the country. He particularly called attention to the Parcels Post Law now pending before Congress, and urged the adoption of a resolution declaring the same to be injurious to the retail Hardware dealers of the country, and that the association take such action as may assist in prohibiting its passage.

The remaining time until adjournment was taken up by short talks and discussions indulged in by a number of the members present.

Committees.

The following committees were appointed by the president:

COMMITTEE ON RESOLUTIONS: W. P. Oldham, Mt. Sterling; J. L. Malin, Vine Grove; U. S. Shacklett, Fulton.

COMMITTEE ON NOMINATIONS: Kee R. McKee, Cadiz; Jos. Knapp, Louisville; Jno. C. Frederick, Owensboro; Geo. B. Minary, Versailles; J. W. Mahan, Lawrenceburg.

Resolutions.

Among other resolutions, the following was the more important:

Resolved, That it is the sense of the Kentucky Hardware and Stove Dealers' Association, in convention assembled at Louisville, Ky., this 25th day of February, 1902, that the clause in the Rural Postal Delivery bill, now

pending before Congress, and which provides for the delivery of merchandise up to the limit of 100 pounds at a very low rate of postage, is antagonistic to the interests of all retail Hardware dealers and an imposition on the machinery of government, and also it is antagonistic to the welfare of those corporations engaged in the business of common carriers.

Resolved, That the action of the association be communicated to the Senators and Representatives of this State, with the request that they take a strong stand against this bill for the aggregate interest of their merchant constituency.

Every member was requested to use his influence with the Senator and Representatives in his Congressional district, and also induce his fellow merchants in his town or immediate vicinity to do the same, with a view to defeating the measure.

QUESTION BOX.

The Question Box brought out quite a number of questions, the more important ones being the following:

Should the legitimate dealer handle seconds?

Should a retailer advertise prices?

What is the best way to fight the Steel Range peddler?

Is it advisable to mark prices plainly?

Those taking part in the debates were: Kee R. McKee, U. S. Shacklett, J. H. Mahan, Ed. Steitler, Jr., P. C. Sower, J. C. Frederick, Jos. Kirchdorfer, J. M. Stone, J. L. Malin, J. S. Ogden and Samuel Korb.

T. James Fernley's Address.

T. James Fernley, secretary-treasurer of the National Hardware Association, made a very interesting and impressive address, which was listened to by the members with the closest attention. We make the following extracts from it:

Appearing before you to-day as the official representative of the National Hardware Association, the query arises, Why have so many merchants from the various parts of your State left their homes and assembled here at this time? This very act on your part has meant some sacrifice; the necessities of your business require constant attention; you have not assembled without some adequate reason. This is also true of those who attend all trade conventions of this character. The members of the association I represent do not travel from distant homes, some one day, many two days, and some as much as four days, toward the seat of convention, for the purpose of having a good time and fraternizing with each other purely on a social basis; some more serious circumstance is responsible for this assemblage.

Only a few months ago, at a time of day when our citizens were to be found in their homes surrounded by their families, the streets of our cities adjacent to newspaper and telegraph offices were crowded with people eager to learn the latest advices from the bedside of our third martyred President. Families who have been separated for years, oftentimes in different States, quickly assemble when word reaches them that the father or mother is near to the point of death.

Recently in one of the financial centers of the country a bank, which ordinarily had but a comparatively few people pass in and out on any given day, was surrounded by hundreds of persons. When inquiry was made as to the cause the statement quickly passed from lip to lip that the bank was in trouble. It is a well known fact that trouble will bring men together who, under conditions of prosperity, are very apt to pursue an independent course.

You gentlemen to-day, I take it, are brought together because more or less trouble is being met in the conduct of the business to which you have devoted your lives, and upon the success of which so much to you and those dear to you depends.

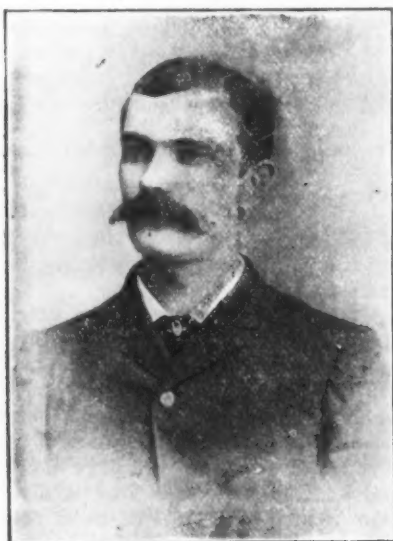
UNITED EFFORT.

It is well that you do assemble in these organizations and by united effort endeavor, before it is too late, to eliminate from the Hardware business the many evils which in an insidious manner have been creeping into it. History will record the present era as one of organization.

The manufacturers of the country have been combining to such an extent that to-day a large number of the commodities that you buy and sell are controlled through some central authority remote from your place of business, frequently manipulated by those who know little of the difficulties which confront those who part with their cash in exchange for the commodities they produce.

Some seven years ago the leading wholesale dealers of the country, realizing that the time was ripe for organizing the Hardware business, formed the National Hardware Association of the United States. To-day this association is composed of 185 of the leading Hardware houses of the country, scattered as they are from coast to coast, employing 2500 salesmen and doing \$160,000,000 annual business. Indeed, this association has within its ranks every representative house in the country, except some six or seven concerns who, for reasons best known to themselves, have not seen fit to co-operate with the association I represent. We, however, have gone on with our work, their membership in the National Hardware Association not being essential to our success.

We have noted with a great deal of pleasure the



HENRY HEICK, Treasurer.

formation of associations among the retail Hardware trade of the country. Your business is being attacked from various sources. Some manufacturers feel secure in selling the consumer direct, notwithstanding the fact that their goods are on the shelf of the Hardware store in the very town where the plant of the consumer is located. Others will sell their product to concerns who do not buy to sell again, but who purchase goods with the avowed purpose of giving same away as a premium to those who purchase teas, coffees and other goods, and indeed, in some sections, we have heard of jobbers of Hardware who would sell the retail merchant and his customer at practically the same price.

ORGANIZED RESISTANCE.

Then, again, you have the competition of that class of operators who are located in some of the large cities and issue cheap catalogues offering the consumer goods at prices which you cannot meet and retain an adequate profit. The dry goods dealer, who has no Hardware education, is also put in competition with you; individual effort will not better the present condition; organized power must be met with organized resistance.

The members of the National Hardware Association are suffering because you are; our interests are one and inseparable. Indeed, there is such a mutuality of interests that one cannot suffer without the other being affected. The commercial body in this particular is similar to our physical body. The National Hardware Association regrets that up to the present time only such a limited number of retail merchants have supported their State associations and that central organi-

zation which is destined to be so beneficial to the interests of the retailer—we allude to the National Retail Hardware Dealers' Association.

ENTHUSIASM, CONSERVATISM AND DETERMINATION.

Trade association to be successful must be managed by men who are enthusiastic in their work, conservative in their judgment and determined in their endeavors to succeed. History does not record a brilliant deed the hero of which was not enthusiastic. What would have been great accomplishments have failed of success for lack of a conservative course of action. Do not coerce; persuasion is more effective.

If the retailers of the country, through these organizations, exercise will power, success will be theirs. Indeed, man possesses no greater power, and when I say man, I mean to embrace woman. A woman's will, if fully exerted, can unhorse death from the pale horse.

A well-known clergyman has given this illustration, which he vouches for: A wife was on her deathbed; the end was so near that she had taken leave of her friends and then asked all to withdraw, while she said her farewell words to her husband. Alone with him, she took him by the hand, and said: "John, will you promise to grant me one request, when I am gone?" "What is it, dear?" he tenderly asked. "I want you to promise me that you will be true to my memory." "What do you mean, my dear?" "I want you to promise not to marry again." "Do not speak of such a thing, my dear; such a thought never entered my mind." "But I want you to promise it, will you?" But his English blood was aroused a little, and he replied: "I do not think it right for you to extort such a promise." With solemn tones, she asked for the third and last time: "I request it. Will you promise never to marry again?" With solemn tones, he answered: "No; I cannot do it." She then said: "I will not die, then." She got well; lived many years and saw him where no second wife comes. Her will power unhorsed death.

If a woman's will can accomplish so much, have we not a right to expect great things to emanate from the determination of self preservation on the part of the Hardwaremen of this country?

The members of the National Hardware Association are determined to do what lies in their power to aid the retail merchant, and if at any time you have the knowledge of any member of our organization pursuing a course which is detrimental to your interests, I ask that you call it to my attention, either through your secretary or direct.

The members of the National Hardware Association of the United States come to you with the offer of the power of their organization to assist you in placing your business upon a plane which will make you the most happy and prosperous of merchants.

Mr. Fernley, at the conclusion of his address, was given a rising vote of thanks.

W. R. Belknap's Remarks.

W. R. Belknap, president of the firm of W. B. Belknap & Co., Louisville, also honored the association with his presence, and offered assurance of assistance from the National Jobbers' Association in the retailers' fight against catalogue houses, department stores and retailing jobbers. His words were very encouraging and to the point.

Election of Officers

The following persons were proposed by the Nominating Committee as officers for the ensuing year:

W. P. OLDHAM, Mt. Sterling, president.
J. L. MALIN, Vine Grove, first vice-president.
U. S. SHACKLETT, Fulton, second vice-president.
PAUL WAGNER, Louisville, secretary.
JOS. C. KIRCHDORFER, Louisville, assistant secretary.
HENRY HEICK, Louisville, treasurer.

They were unanimously elected.

Delegates to National Meeting.

The delegates selected to attend the meeting of the National Retail Hardware Dealers' Association, at Chicago, on March 19, 20, were Jno. C. Frederick, Owensboro, and Paul Wagner, Louisville, the alternates being

J. L. Malin, Vine Grove; J. F. Van Deren, Lexington, and Jos. C. Kirchdorfer of Louisville.

The delegates will go to the Chicago convention uninstructed on all proposed legislative measures, excepting the rural postal delivery, which they will oppose.

J. L. Malin's Paper.

J. L. Malin of Vine Grove read the following paper on "Why a Dealer Should Join His State Association":

When I received Mr. Wagner's letter, asking me to write a paper to be read before this intelligent body, I realized my inability to do so, and felt that it would be a useless consumption of your valuable time. However, as I had promised (as I believed) when I joined the association, to do whatever I was called on to do, and do it to the best of my knowledge and ability, and to help in every way that I could to advance the interests of this association, I consented to do as the secretary had requested. He was kind enough to leave the subject to me, so I selected, "Why a Dealer Should Join His State Association." An old, I realized, yet an ever new question, for every dealer who is a member, and interested as he should be, in association work, is constantly thinking of some new reasons he can give some dealer who is



J. L. MALIN, First Vice-President.

not a member that will induce him to join in the good work.

The reply some dealers make when asked to join their State association reminds me very much of my experience in the life insurance business, especially in the country. You lay the matter before them, put up your argument, and they will very likely agree with every statement you make, but when you press the question, they will say: "Yes, I know it is a good thing, it's all right, but I don't need it, Neighbor Jones ought to have it," &c. And that is the way with a good many dealers when it comes to the association. "Yes, it's a good thing, these dealers over here in the next town that are always cutting prices, they ought to join it, but I guess I won't. I am not troubled much with catalogue houses, the jobbers do sell a farmer around here sometimes, but I couldn't sell him, any way; guess I won't join."

A NON-MEMBER.

I will venture the assertion that if you will go to that dealer's town you will find goods arriving nearly every-day from catalogue houses. Go to his place of business and you will find that his window display has not been changed for years, that the same old Nail kegs he has used for chairs since he went into business are occupied by the same loafers every day; that the arrangement of his store has not been changed since the first stock was put in. But if he will wake up, join his State association, attend the meetings, rub elbows with those in the same line, listen to the suggestions that are made, and the experience of others, he will go home, wash his windows, change the display, fire out the Nail kegs and the loaf-

ers, rearrange his stock, and take a new lease on life. He will find that his competitor in the same town and the dealer in the next town are not half so bad as he thought, but that they are all in business for the same purpose—to make money. He will also learn not to believe everything a customer comes in and tells him about his competitor or the dealer in the next town.

ANOTHER KIND.

But I am glad to say that there are not many of this kind. "There are others." There are those who have no time to attend meetings, who are too selfish to give a few days or a few dollars to the upbuilding of their brothers in the same line, and at the same time too shortsighted to see the benefit it would be to them. And if they would join their State association, attend the meetings and get in touch with this great movement, they would go back to their homes with a broader view of life, with better ideas of how to conduct their own business, and would awake to the fact that the world is somewhat larger, at least, than the county in which they live.

There are those, no doubt—not members—who think they know how to conduct their business better than any one else. If so, they should join us and give us the benefit of their ideas, for here is where the greatest enjoyment and benefit comes from our organization—the exchange of ideas and the telling of experiences. Combination, consolidation and concentration are the factors in the business world to-day. There was never a time when there was ever so great an organization of capital and industry in the hands of the business brains of the country as to-day. Present conditions were never known before. This is another reason why every retail dealer should take hold of organization work.

SINGLY WE CAN DO NOTHING.

united our influence will be respected. Individually you may write to your retail jobber until your arm is palsied with old age, and you will get nothing but "hot air."

When you let him know through your association secretary kindly but firmly that two-thirds or more of the retailers in the State are ready to stand by you in a just complaint, you will see how quickly he will change the tone of his letters and his treatment of you and your customers.

No sensible man can fail to admit that organized effort will control when individual effort might, and will, fail. Associations of every kind are primarily formed for the purpose of mutual protection. And the prime object of organization is to advance the welfare of members and incidentally the trade at large.

TROUBLES VARY.

My troubles may not be the same as some other dealer's in another part of the State, and his may be different from those with which some one else has to contend.

Therefore every dealer should join his State association, and stand shoulder to shoulder, presenting a solid phalanx so that the combined forces of those who are opposed to us cannot penetrate our lines.

Granting and demanding only what is right we will succeed in our undertakings. Then let us take for our motto that of our grand old Commonwealth, "United we stand, divided we fall," and learn, as some one else has said:

To live for those who love us,
For those that we know are true,
For the heaven that smiles above us,
And awaits our coming to;
For the cause that lacks assistance,
For the wrongs that need resistance,
For the future in the distance,
For the good that we can do.

Samuel B. Korb's Address.

Samuel B. Korb, who is secretary of the Louisville Retail Hardware and Stove Dealers' Association, addressed the meeting, as follows:

A short time ago our secretary informed me that I would be called upon to make an address before your honorable body. I am no orator, so shall attempt no oratorical flights, but will simply state facts coming before

my mind as I go along, assisted by notes hurriedly prepared which I have with me.

The road traversed by the average retail dealer is strewn with many wrecks, and in seeking the cause of this the following reasons might be offered:

Lack of capital, neglect of business, dishonest business methods and unfair competition, either directly with jobbers or manufacturers (who retail), or indirectly through them with catalogue houses and department stores.

UNFAIR COMPETITION.

All other issues which this association may have now or in the future to deal with are as mere pigmies in comparison with "unfair competition." We have reason to feel alarmed with the progress it has been making in the last few years, and unless checked the pathway already choked with wrecked retail dealers will be filled to overflowing with other unfortunates, and who can tell but what some of us may be among the number.

The most flagrant unfair competition is with the manufacturer or jobber who sells to you and at the same time directly or indirectly seeks the trade of your customer. The retail dealer makes the jobber, therefore the jobber needs the retailer in order to retain his identity as a jobber.

Through the combined purchases of the retail dealers jobbers are enabled to buy large quantities of merchandise, thus securing the lowest possible prices and other valuable concessions not ordinarily given to the average retail dealer.

Thus if he chooses to do so he can become the retail dealer's worst competitor. As matters stand to-day the retail dealer is virtually the agent of the jobber. He not only sells merchandise for him, but must become responsible for all expenses, collections, &c., necessary in the conduct of his business.

This same jobber, in his anxiety for more business and regardless of the consequences to the retail dealer, seeks other channels through which to dispose of greater quantities of merchandise, and using no discretion whatever he even becomes a competitor for business which absolutely belongs to some retail dealer.

Objections on the part of the retail dealer to such practices are at times entirely ignored, or perhaps the excuse may be offered that he is doing only what other jobbers are doing. Or perhaps to keep the retailer in a good humor in order to retain his trade he may throw him a bone in the shape of a small commission whenever he thinks it necessary. He endeavors to make the retailer believe that his supposed grievances are purely of an imaginative nature, at least as far as he is concerned.

Thus have I not only described the most pronounced of unfair and dangerous competition, but also warn you that unless this association finds a way to overcome such competition it will be useless to go any further in seeking relief from other competitors.

CATALOGUE HOUSE COMPETITION LEGITIMATE.

In taking up catalogue house competition, which I sometimes see or hear characterized as illegitimate competition, I will state that the word "illegitimate" is ill advisedly used. The business can be carried on in a legitimate manner if honestly conducted. Its success lies in doing an absolutely cash business with an ever increasing number of customers, who deceive themselves into believing that money can be saved through purchasing from catalogue houses. The cost of transportation is in nine cases out of ten not considered, and not until the goods arrive at the express office or freight depot do they realize that they are out of pocket after adding freight charges to the amount prepaid for their purchase. If you come in contact with a catalogue fiend, talk the matter over with him intelligently; do not down catalogue houses to him, as you simply advertise them by so doing, but endeavor to convince him that by buying at home he has the advantage of examining his purchase before paying for it at the same price as published in his catalogue with transportation expenses added. If you haven't the article in stock and it is in your line get it for him, even if you must do so without a profit, provided he pays you cash. Do

not allow him to do business with a catalogue house if you can keep him from it, because it is a hard matter to wean a catalogue customer.

As a rule competition is felt more by the country or village merchant than by the merchant in large cities. The latter class, though, have reason to feel alarmed also, as catalogue houses, encouraged by success in other quarters, are spreading their literature in larger cities, where it can be had through the asking.

DEPARTMENT STORE COMPETITION

is an especially dangerous element with which merchants in larger cities have to contend. Department stores, as the name signifies, have different departments for different lines of business. As a rule the largest department contains dry goods, &c., and as this department is the main source of revenue, oftentimes the goods in minor or less important departments are advertised at prices which are almost, if not altogether, devoid of profit. The department most frequently advertised seems to be that containing such goods as are usually carried in stock by Hardware, Stove and Tinware dealers, and at prices very close to cost, if not at cost. The public in general cannot be blamed for taking advantage of cut prices, but the retail dealer, and I do not mean only Hardware or Tinware dealers, but all retail dealers, who purchase or allow their families to purchase at department stores, no matter what it is they buy, are cutting their own throats, not realizing that every dollar of their hard earned money spent at these places is simply used to make richer and more powerful a much dreaded competitor.

HOW SUPPLIES ARE OBTAINED.

Catalogue houses and department stores in many instances depend on local jobbing houses for immediate supplies. These jobbing houses, always on the lookout for large orders, are ever ready to quote extremely low prices to same, forgetting, perhaps, that the more goods they sell to catalogue houses and department stores at a small margin of profit the less they will be able to sell to regular retail dealers at a larger margin of profit, and that by so doing they are unconsciously helping to crush their most profitable source of trade.

AGGRESSIVE ACTION NECESSARY.

It is necessary, therefore, for us to show the jobber or manufacturer who caters to department stores or catalogue houses the error of his way of doing business, and if we find that we cannot convince him that we are right, we must tell him in unmistakable language that he must choose between us for future trade, and that we will positively refuse to buy from any jobber or manufacturer who caters to catalogue houses or department stores.

In conclusion, allow me to add that in order to gain a complete victory in our cause we must all pull together, country merchant and city merchant alike, even though our interests may vary, and whatever this association now or in the future promulgates, act by it accordingly with unwavering determination. Then and then only will we win.

Louisville was selected as the place of the next meeting, which is to be held in February, the particular dates being left to the Executive Committee.

CONVENTION NOTES.

On the evening of the 25th a very enjoyable smoker and Dutch supper was tendered the State association by the Louisville Retail Hardware and Stove Dealers' Association. Terstegge, Gohmann & Co., Stove manufacturers, of New Albany, Ind., took advantage of the occasion and presented every one present with a souvenir in the shape of a small skillet, nicely finished and nickel plated.

Another social feature was a theater party, given to the members and their wives by the jobbing firm of W. B. Belknap & Co. Eighty-one persons took advantage of the invitation and went to Macauley's in a body. The occasion was a most enjoyable one, and the hospitality of this well-known house was thoroughly appreciated.

W. W. McCune, representing Robeson Cutlery Com-

pany, had a nice display of Cutlery, Stamped and Plated Ware on exhibition at Hotel Headquarters.

W. R. Wells and John O. Tate represented E. C. Atkins & Co., Saw manufacturers, of Indianapolis, Ind. They made every visitor feel at home in room 109 at the Willard Hotel, where they had an elaborate line of Saws of all descriptions and such other goods as they manufacture on display. They also distributed a souvenir, showing a farmer in the act of sawing a very large log with one of their Cross Cut Saws.

Fischer-Leaf Company, Louisville, had on display at their warerooms, near the meeting hall, one of their new productions in the way of a Down Draft Soft Coal Base Burner in operation.

B. F. Avery & Sons, Louisville, presented the chairman with a speaker's gavel, made from oak grown in "Old Kentucky." The gavel was, before adjournment, in turn presented to Mr. Dehler as a memento and remembrance of his position as the first president of the association.

DEATH OF J. A. LYON.

JUDSON A. LYON, for many years a partner in the New York wholesale Hardware house of Smith, Cohu & Co., later Smith, Lyon & Field, died at his home in Cranford, N. J., Sunday, February 23, of heart failure, his death being almost instantaneous. He was born in Auburn, N. Y., December 10, 1830, and after leaving school went to Chicago. His first experience in the Hardware trade was with the house of Edwin Hunt, Chicago, formerly in the general Hardware business in New York, handling principally English goods, at the corner of Platt and Gold streets. Mr. Lyon entered the employ of Tufts & Colley, New York, Hardware jobbers with Southern and Western connections. He stayed with them until about the close of the Civil War, when on their failure he identified himself with Louderback, Gilbert & Co., then in Park Row, opposite the present Post Office. After about seven years in their employ he became a partner in the firm of Smith, Cohu & Co., which had just been formed, located at 79-81 Duane street. About 1882 the title of the firm became Smith, Lyon & Co., which continued for about three years, when another change was made to Smith, Lyon & Field, which it still remains. Mr. Lyon, however, severed his connection with the house in 1890 and for the succeeding four or five years conducted a commission Hardware business with headquarters in Reade street. A few years ago he seriously injured one of his lower limbs while getting out of his buggy after a ride and from the effects of which he never entirely recovered. He retired permanently from business in 1895.

STRATTON BROS.

R.O. STETSON has purchased the long established Level business of Stratton Brothers, Greenfield, Mass., and will continue it under the same firm name as heretofore. The business was founded in 1869 by Edwin A. and Chas. M. Stratton. Since the death of the latter, in 1893, the business has been continued by Edwin A. Stratton. The line of goods manufactured includes Carpenters', Machinists' and Masons' Wood Levels, a specialty being made of brass bound rosewood and mahogany Carpenters' and Machinists' Levels. It will be the new proprietor's aim to increase the efficiency of the shop, maintain the standard of the goods, and make any improvements that will add to the value of the goods to the user.

W. H. BOUTELL & Co., Rochester, N. Y., have been succeeded by Boutell Mfg. Company, who will continue the manufacture of Apple Parers, Slicers, Choppers, &c., as heretofore.

T. C. SCHUCKINGS of Pacific Hardware & Steel Company, San Francisco, Cal., called at the Chicago office of the Reading Hardware Company on Monday en route to New York.

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DEATH OF A. F. SHAPLEIGH.

AUGUSTUS FREDERICK SHAPLEIGH, aged 92 years, retired merchant and financier, died at his residence, 3621 Washington avenue, St. Louis, Mo., February 27, after an illness of five weeks. His death was due to no well defined ailment, but rather to old age, and a natural failure of vitality. He had been in failing health for many years, but retained the full use of his faculties to the last, despite his advanced age. Mr. Shapleigh was a pioneer of St. Louis, and in his prime an active factor in the local business world. He was born at Portsmouth, N. H., January 9, 1810, the son of Richard Waldron Shapleigh, a ship owner, who was lost with his vessel, "Granville," off Rye Beach, Maine, in 1824, when returning from foreign ports with a valuable cargo.

The family, of English lineage, emigrated to America in 1635. Alexander Shapleigh, merchant and ship-owner, of Totness, Devon, one of the earlier members, was intrusted with the interests of Sir Ferdinando Gorges and Capt. John Mason. The family settled at Kittery Point, on the Piscataqua River, Maine, then in the colony of Massachusetts. Many important trusts under the British Crown were held by the family, and



AUGUSTUS FREDERICK SHAPLEIGH.

portions of the possessions were owned by members of the family in 1894, representing a tenure of more than 250 years.

The loss of R. W. Shapleigh's ship left the family without support and in reduced circumstances. Augustus began his business career by accepting a position in a Hardware store at a salary of \$50 a year. At the end of the first year he embarked as a sailor, making several voyages to Europe and spending three years upon the sea. An anxious mother and sisters finally induced him to re-enter the Hardware business in his native city, where he had served his first year of business life. After some years at home he accepted a position with the Hardware firm of Rogers Bros. & Co., at Philadelphia, with whom he remained until 1843, having become a junior member. The house then determined upon a branch in St. Louis, and Mr. Shapleigh was assigned to its management. They opened there that year under the name of Rogers, Field & Co., afterward changing to Rogers, Shapleigh & Co., which upon the death of Mr. Rogers became Shapleigh, Day & Co., followed by A. F. Shapleigh & Co., and so continuing until 1881, when they were merged into a corporation known as the A. F. Shapleigh & Cantwell Hardware Company. In 1888 they again changed to the A. F. Shapleigh Hardware Com-

pany, with Mr. Shapleigh as their president, and his sons, Frank, vice-president; Richard W., second vice-president, and Alfred Lee, secretary-treasurer. The company were burned out in 1886, but rebuilt and enlarged until they were one of the most extensive wholesale establishments of their kind in the West. The firm are now known as the Norvell-Shapleigh Hardware Company.

The deceased retired from active interest in the business last May, after continuous service since 1843. Mr. Shapleigh was a man of pronounced integrity and fairness in business dealings, and to his energy and foresight are due the rapid growth and importance of the enterprise he founded. Mr. Shapleigh was identified with many prominent institutions in St. Louis at different times. He was trustee and director of the State National Bank of St. Louis, formerly known as the State Savings Institution, and for 28 years was a director of the Merchants-Laclede National Bank, resigning that position in 1890 to his son, Alfred. He was for a long time president of the Phoenix Fire Insurance Company, and was vice-president of the Covenant Mutual Life Insurance Company. He was interested in valuable mining properties and other industries, and, on retiring last July from active management, retained his stock in the institutions. He is survived by four sons and one daughter—A. F. Shapleigh, Jr., Dr. J. B. Shapleigh, dean of the Department of Medicine of Washington University; Richard W. Shapleigh, vice-president of the Norvell-Shapleigh Hardware Company; Alfred L. Shapleigh, treasurer of the same company, and Mrs. J. William Boyd. Frank, another son, died one year ago. The deceased was a member of the Presbyterian Church. The funeral services were held at the late residence February 28, followed by interment at Bellefontaine Cemetery.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

On the 14th ult. fire completely gutted the main store-room, office and basement of the Cash Hardware Store, Lewiston, Idaho. They were fully insured, however, and a satisfactory adjustment is assured. All their office supplies were destroyed, and they will be pleased to receive catalogues and price-lists relating to Hardware, Tools, Builders' Materials, Vehicles, Farming Implements, &c.

C. B. Smith has succeeded J. H. Markel in the Hardware, Agricultural Implement, Stove, Furnace, Tinware, Plumbing, Glass, Paint, crockery and seed business, at Shrewsbury, Pa., and will be pleased to receive catalogues and price-lists relating to these lines.

W. R. Becker has disposed of his interest in the firm of Smith & Becker, Camden, N. Y., to L. P. Smith, his former partner, and has formed a new partnership with Conrad Klett, also of Camden, under the firm style of Becker & Klett, and will open a new store with practically the same line at 89 Main street, as soon as necessary repairs can be made to the store, which repairs will probably not be completed much before April 1. Becker & Klett will do a cash business as nearly as possible, and will pay spot cash for all goods purchased. The new firm will be glad to receive catalogues and quotations pertaining to Hardware, Stoves, Tinware, Sporting Goods, Agricultural Implements, Paints and Oils, Harness, plumbing and steam fitting goods, &c.

J. J. Gerrish & Co., Portland, Maine, Railroad and Mill Supply dealers, also have a trade in Hardware, and request catalogues and price-lists from manufacturers.

Shidler Brothers, wholesale and retail dealers, South Bend, Ind., are increasing their stock of Heavy Hardware and Blacksmiths' and Carriage Makers' Supplies, and would be pleased to receive catalogues, &c., relating to these lines. They are now engaged in remodeling and enlarging their establishment and expect to complete the work about April 15.

Iowa Retail Hardware Dealers' Association.

THE fourth annual convention of the Iowa Retail Hardware Dealers' Association held its opening session in the Young Men's Christian Association Hall, Cedar Rapids, on Tuesday afternoon. President W. A. McIntire of Ottumwa, Secretary Keating of Ottumwa, Treasurer Geo. Lister of Manchester, and most of the other officers were present. The attendance was not up to that of last year's convention at Dubuque, but the falling off was expected in view of the circumstances attending the postponement of the annual meeting, originally arranged to be held at Des Moines.

President McIntire expressed his gratification at the goodly number present. He then stated that the action of the last annual convention in raising the dues from \$3 to \$5 had not met with the general approbation of the members, as many by sending in only \$3 had thus registered their protest against the increase. The Executive Committee at its meeting at Des Moines to arrange for this convention authorized the officers to collect only \$3 for this year's dues, believing that its action would be indorsed by the association. On motion of George Lister the committee's action was indorsed. Secretary Keating read his report, as follows:

W. H. Keating's Report as Secretary.

If my report seems, to the convention, to be rather brief, I wish to remind them that my term in office has also been but of short duration.

It was after the meeting of our Executive Committee last December in Des Moines that our president, Mr. McIntire, called me up by 'phone, and gave the information that I had been elected by that body as secretary of this association, to act until after their next meeting.

Upon receipt of the books and papers from the former secretary I found that while there were about 400 names enrolled as members of our association, only 102 had paid their dues for 1901.

This by no stretch of imagination can be called a very flattering showing, especially for Iowa, the State of all others that at this time is attracting the attention of the whole country for her many brilliant and learned statesmen, her enterprise and general business prosperity.

Now the question for us to decide is, Why, with business good and everything in a healthy and flourishing condition, should our association continue to lag?

Is it because we are so shortsighted that as we have made a fair profit for the last year or two we fondly imagine that those things of which we used to complain have ceased to exist? Or is it that, having joined the association and paid our dues for one year, we sit back and expect all the reforms for which we hope to be accomplished in that short space of 12 months, and because we can look across the street and see the "Racket Store" running the same as last year, we jump to the conclusion that our association is no good and accomplishes nothing?

Another thing we did upon receipt of the books was to begin immediate preparation for the annual meeting. Together with the president we prepared and mailed circular letters and programmes to all the dealers; afterward we mailed the same number of postal cards notifying the trade of the change in hotel headquarters. Then again, when we supposed everything was prepared and all arrangements complete for a meeting at Des Moines, came the news just a few days before the time set that on account of smallpox being prevalent the City Council had declared a quarantine against holding public meetings. This necessitated mailing cards to all the trade postponing the meeting, and afterward sending a circular letter calling this one at Cedar Rapids.

Treasurer's Report.

Treasurer Lister read his report, showing balance on hand last year of \$190.10; received during the year, \$208; total, \$398.10; paid out, \$345.96, leaving a balance of \$52.14.

On motion of L. H. Kurtz of Des Moines the secretary's and treasurer's reports were referred to the Executive Committee to be audited.

The following Reception Committee was appointed: Geo. E. Staehle, Earlville; L. Lindenberg, Dubuque; Jacob Seither, Keokuk, and A. C. Veitch, Oakland.

Traveling men were called on for addresses, and T. C. Burdick of the Janesville Barb Wire Company, Janesville, Wis., made an entertaining talk.

QUESTION BOX.

The Question Box was opened and several questions were discussed, as follows:

What is your experience in early closing, say at 6.30?

Numerous members answered, representing cities in different parts of the State, unanimously expressing satisfaction with the adoption of early closing hours and stating that they would never return to the old custom of keeping open until late at night, excepting on Saturday and a week or so before the Christmas holidays.

Is it an advantage to divide your trade with every house calling on you?

The discussion which this brought out was also one sided. The members speaking all thought it best to buy largely from one house, thus securing greater appreciation of the orders sent in, which will lead to greater interest by the house thus favored. The point was made that in Stoves particularly one full line should be carried at least to meet the wishes of customers who desire a variety of sizes.

Is Paint a profitable and satisfactory line to handle in connection with Hardware?

Several members gave their experience in handling Paint, all of them being favorable.

Why are there no catalogue houses in St. Louis?

The answer by a Southern Iowa member was that the trade of St. Louis is largely with the South, where the people are accustomed to buying on long time, and it would be difficult to educate them to pay cash, as required by the business methods of catalogue houses.

The convention adjourned to meet at 9 o'clock Wednesday morning.

The Commercial Club of Cedar Rapids will entertain the delegates to the convention at a smoker in the club-rooms on Wednesday evening.

The president will read his annual address at the Wednesday morning session. At the same session H. A. Cole of Council Bluffs and C. R. Keating of Mt. Ayr will read papers on the subject of "Benefits of Organization" and S. R. Miles of Mason City one on "Credits." At the Thursday forenoon session the papers read will be by Geo. Staehle of Earlville, whose topic is "Trusts in Their Relation to the Retail Dealer," and L. Lindenberg of Dubuque, who will discuss "Our Competitors." All of the above are given in the following columns.

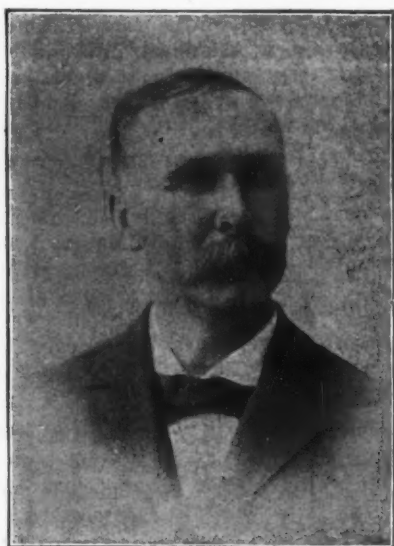
President McIntire's Address

I am pleased with the honor of presiding over the deliberations of this body, composed as it is of a class of men not excelled in integrity and business ability by any equal number of business men in the State. Our hands may not be as soft and white or our complexions as fair as some of our brothers in the mercantile line, but our hearts are just as big and our muscles are better developed. A good combination of brawn and brain and a clear conscience are said to be essential to good digestion. We have both.

PROSPERITY AND SPECULATION.

We have just passed through another prosperous year, one of increased sales and fairly good collections. A year of energy and improvement on every hand. It is easy enough for one to succeed in business under

such conditions, but we must not be unmindful of the fact that such prosperity is usually followed by adversity. It seems to me there never was a time when there was as many incentives to extravagant and doubtful speculations as in the past year. The mails are full of circulars setting out in glowing terms the unexampled opportunities for investments from which a fortune can be realized in a few years. The solicitors, too, are on the ground with their sophistry, enticing and inducing merchants and others to invest in their stocks at 8, 10 or 12 cents on the dollar. It is apparent the value of such shares have plenty of room to grow before reaching par value. Many a surplus dollar has been taken up in these speculations. There are an innumerable number of mining stock schemes, from coal to gold, with their alluring inducements, not to mention the prospective coal oil gushers, board of trade and other speculations. It is all a game of chance. It is but the one man in many that ever gets his money back. If it is but the surplus dollar that is invested in these doubtful enterprises your business will not



W. A. McINTIRE, President.

suffer, but I am told that many invest the money that legitimately should be in their business.

The conservative, safe, reliable, successful business man is the one who makes his money through the tried and true channels of his business. The road to success seems plain, but we are apt to deviate from it. I am convinced, however, that these annual conventions strengthen us and better fortify us to meet the problems in a business life.

BUSINESS ORGANIZATION.

This is a day of organization and concerted action in almost every branch of industry. Self preservation in the commercial world makes this necessary. It is an evolution in business when men organize and meet at regular intervals and collectively consider business propositions with which they have come in contact in actual experience during the year. No man is so wise or so far seeing but that he will be benefited by coming in contact with others. We have but little originality in our make up. Addison said: "Mankind is more indebted to industry than ingenuity." We have gotten our knowledge largely from others. Then, if we mingle not with others we do not get the best.

UTILIZING THE TRAVELING MAN.

It is worth your while to invite a traveling salesman to sit down and spend an hour with him. His vocation puts him in touch with men and measures. He is an observing man of some ability or he could not hold his position. Treat him cordially, even if you do not give him an order. They are here with us to-day by invitation that we may be benefited by touching elbows with them. We get our knowledge by induction and deduction. We observe certain business principles

adopted and followed successfully. We adopt the same and by analogy we adapt them to our business. We do more if we would be progressive.

FORWARD OR BACKWARD.

From our knowledge of well established business principles we deduce other principles. And so each decade and each year is an improvement over the past one. Every retail Hardware dealer in the State should be applying better business methods this year than last. There is no middle ground, you are either going forward or backward. You may not have made as much money this year as in a former year, but if you are up to date, if you have kept out of the proverbial rut, your methods have improved.

COMPARING NOTES.

We are here to-day to compare notes. We are here in an experience meeting as it were. If you have evolved anything during the year of interest to the Hardware dealer, we want the benefit of your experience, and so with an interchange of ideas we shall all leave this hall with a knowledge that we have been benefited. We want but little formality here, but a free interchange of ideas and experiences. In no way can this be so well gotten as at our annual convention.

TRADE JOURNALS.

The trade journals we cannot commend too highly; they have a place to fill, and serve their purpose well. No well regulated store should be without them. They are an always welcome visitor, but they give us cold facts and figures in their application to our business. They lack the inspiration that comes of being in contact one with another.

BROADENING IDEAS.

At a meeting like this, you intuitively imbibe the spirit that pervades the atmosphere. You catch the spirit of the interest and energy and magnetism of those with whom you are associated. You leave the meeting with a knowledge that your ideas have been broadened and enlarged. You realize that you are only an integral part of the whole, and while you have succeeded fairly well, some of your neighbors have succeeded equally as well or better. Self conceit is a necessary element to success when tempered with good judgment. It enables one to accomplish results. It gives you opinions of your own. It gives identity, and stamps you as an important factor in your business. It directs those in your employ. No business man can succeed without it.

No clerk is worth his hire unless he can do something independently and alone. The business world wants more leaders and fewer followers, young men full of ideas and energy and old men with pronounced good judgment. The methods of doing business fifty years ago will not apply to-day. The business man of fifty years ago is a back number to-day, except he, by association, observation and energy, has kept abreast of the times.

THE WAYS OF THE WORLD

change, and one must be ever active and alert to keep pace. It is hard to break away from the well beaten path. The man who harvested his grain with a cradle and threshed it with a flail still rejoices in the knowledge of the good old times of yore and the enjoyments, if not the comforts, in those days. But how changed the conditions now! The financial giants are in a mad race for the goal. The Hills, and the Morgans and the Vanderbilts are organized. The trusts are organized. Labor is organized. We, too, must be organized. Not because it is a popular fad. Not because of social pleasure altogether, but for the promotion and protection of our business.

NECESSITY OF INCREASING SALES.

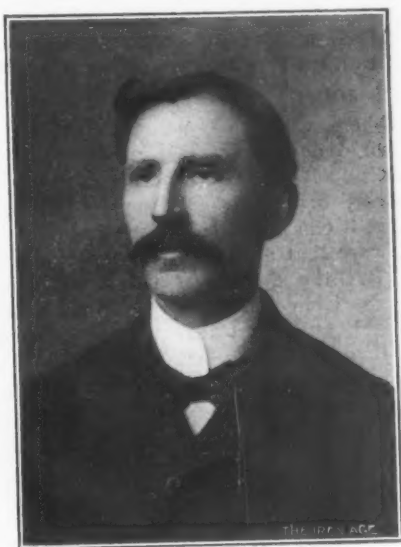
In the past few years the commercial world has enlarged. The merchant who sold \$10,000 worth of goods 15 years ago must now sell \$20,000. Expenses are higher and margins on sales smaller. There are no trusts in our business. You must meet competition fair or unfair. Year after year we observe various articles in Hardware forced into the staples line, until to-day the bulk of the goods sold in our line may be classed

as staples. The dealer must meet these prices or lose his trade. He must, therefore, increase his sales so that in the aggregate, at the close of the year, his profits will be as large or larger than formerly. The twentieth century dealer will not permit an accumulation of odds and ends, a collection of rusty, damaged and unsalable goods; but after invoicing, which should occur once a year, they are put in the best possible condition, pushed to the front and sold at some price.

The jobber to-day is in close proximity. You can get your goods clean and bright on short notice. It is not necessary to carry a heavy stock, but it must be complete. Buy in small quantities and carry what your customers call for.

THE BEST CITIZEN.

Another thought. He who lives alone for his gains in wealth is not the best citizen in a community. To be an important factor in the community in which you live is more to be desired than wealth. It has been said, "Every man is the son of his own work." The man who succeeds should have a higher motive than money getting. A miser may hoard up his gains and become wealthy through his accumulations. A man through dishonest practices may accumulate this world's goods. A



W. H. KEATING, Secretary.

man with purely selfish instincts and motives may succeed financially. But what is the gain? The estimate placed upon a man in the community in which he lives is worth more than all else. A man's ambition to succeed honestly in whatever he undertakes is laudable and commendable, and when attained is worth more to him than all the gold that comes with success.

INCREASING THE MEMBERSHIP.

In conclusion I want to call the attention of those present to the necessity of a more perfect organization of the retail Hardware dealers in Iowa. We should have two or three times the enrollment that we now have. We look to the national organization for results. They have the scope and with it the influence that will benefit us. It has accomplished much in the interests of our business. The National Association depends wholly upon the State organizations for its influence and support. It needs our financial support. We need its influence. Our interests are mutual. With 1500 dealers in Iowa we should at least have 500 members, which would mean \$500 to the National Association. Our Hardwaremen are not wholly selfish; they are careless and indifferent. In no State in the Union have the dealers been more prosperous than in Iowa, and in no other State is the catalogue house business growing faster. It then devolves upon every member present here to-day to work during the rest of the year to increase our membership. I hope when this meeting closes that each one present will constitute himself a committee of one to enlist members during the year.

Benefits of Organization.

BY H. A. COLE, COUNCIL BLUFFS, IOWA.

The subject of organization is so old, and has been such a vital one in all the achievements of the past in every department of life, that I hardly know where to begin. I cannot hope to say anything new, or to more than repeat things that have occurred to us all in picturing the ideal Hardware business. Every advance made in civilized government has been but another step toward more perfect organization.

In ancient Bible history, when Moses' father-in-law came up out of Midian and found him trying to be judge and jury leader and law giver for each individual in the tribe of Israel, he found him in the situation of many retail Hardware dealers of the land, and especially our association work. He told him to organize; to divide them into hundreds with its captain, and into its thousands with their captain, and he himself to settle matters that came through the lower heads and from this time on he was truly the leader of the nation.

Our great public and private institutions, our Government, our railroads, our big corporations of all kinds, are all illustrations of highly organized institutions, and their success or failure depends on whether well organized or not.

But to bring the subject home to our business, our difficulties are all because of poorly organized retail methods on our part trying to fight illegitimate business schemes that are furthered by highly organized companies with plenty of money at their back on the other. The reason we make such slow progress is largely as above, because we are trying to fight them without a systematic and thorough organization of our own.

TOO BUSY FOR ASSOCIATION AFFAIRS.

I confess the outlook is sometimes discouraging, especially when we have an era of prosperity and every retail dealer gets so busy he has no time to give to association affairs. But I want to say that unless you prepare in good times, you will have no defense when you need it most, in times of depression. When you are doing all the business you can attend to everything is well. But when hard times come, as they are sure to do, then it is that the dozens of customers who send their cash to the city and leave their credit trade at home are seriously felt and noticed. They are merely doing what they have learned to do while you were giving these things no attention, because you were too busy.

NATIONAL ASSOCIATION.

My own idea is that the retail dealers will never make much headway against these evils until they meet them with a thorough national organization; with a first-class man as secretary, who is well paid for his time and can devote his whole energies to the proposition. We have got the organization barely started. We have got the good men, but they are not paid for their time, and, of course, cannot devote it to the questions before them. Furthermore, each State insists on pulling off and allowing its finances to be absorbed within itself. There is no central plan to consolidate and conserve the strength of our National Association. Our ideas of finances for both our State and National associations are far too small. If you make your annual dues \$2 or \$3, it is very probable you will see but small returns for the money.

Be far sighted enough and unselfish enough to make them three or four times as much, and you can all see results, and see them at once. No results outside of an educational nature can come to you on the narrow gauge plan. You must have your central body the head and brains of the whole retail Hardware dealers' movement.

EACH STATE ORGANIZATION

must take up the educational phases of the work and carry this and other matters out. Without this each State will have a different policy. One State will put certain classes of stores on the unfavorable list and another State will have another policy, and the result is the manufacturers, who alone could protect you by refusing their lines to illegitimate houses, do not know what is expected of them, or become disgusted at the

arbitrary rulings of some State organization and do not try to carry out your ideas.

COMBINING GRIEVANCES.

There is no question but what, as a whole, the manufacturer would prefer to have his goods marketed in the regular channels of trade. But how can you present him with a proposition that he can consider, without some such one central organization to work through? If each State organization will handle its grievances through the National, and each one will make its rules correspond with those of the National, and then give the National organization such financial support as will enable it to keep an office force and devote the whole time of a first-class man to the matters in hand, you will, I promise, see results you have been only able to hope for up to this time.

Half the effort of the office could be devoted to well devised plans of State and local organization, and when retailers would be the recipient of constant reminders



H. A. COLE.

of the value of the association movement, there would be no further trouble about matters.

IN THE STORE.

But a word as to what retail dealers can do along the line of organizing their own business affairs. Red tape is expensive, and lots of small stores can't afford much of it. Where a dealer is doing a small business, and must be his own main clerk, it is hard to introduce much system. But we can have our time each day, for looking over the trade paper, and our time for scanning the ledger carefully, and also the sales of the previous day. After these three important details of trade news, daily credits, collections and sales, have been attended to, the other thousand matters can come in for their share.

Every dealer should know just what it is costing him to do business, and keep this item where it belongs. He should take time now and then, and do it systematically, to work off slow selling stock. He should give the question of not letting the store fixture account absorb too much of his capital. And then another question every dealer should consider carefully that is right in the line of organization.

TAKING UP OTHER LINES.

You may find that the volume of business in your section in the strict Shelf Hardware and Stove line is so small as not to enable you to make money. If this is the case, buy out some kindred line that will harmonize with Hardware—like implement or furniture—and furnish your store the necessary volume for profitable business. There is nothing about the combination of kindred lines that makes the department store objectionable. It is their method of using baits and false methods of deception to draw trade, and from my observation since moving over to Chicago, the public are fast finding out that they have to pay what goods are really worth, whether

they get them at a department store or of any other store.

You have nothing particularly to fear from the department store, simply because their cost of doing business is greater than your own, and will not compensate for the little advantage they sometimes get in buying their goods.

CATALOGUE HOUSE COMPETITION.

But the catalogue house matter is at present a menace that needs the best thought and attention of the regular channels of trade. If the retail tradesman of the land, with the thousands of families he supports and millions of taxes he pays, is a necessity and a benefit to the land, then the public has got to have this idea brought home to it. Manufacturers and jobbers have got to appreciate that he must be able to buy his goods as cheap as any other dealer, big or little, who sells to the consumer direct.

It is merely, then, a question of properly organizing your forces to bring about these two facts: Education of the public to its plain duty of supporting home institutions, and manufacturers and jobbers to the extent that no catalogue house can buy goods at jobbers' prices. You have got to get a hustle on you to do this. You have got to spend lots of money to do it. You have got to have the united support of the majority of the retail dealers, not in this State or that State, but of the great Central West, and this support, centralized into one working head, led by a man of ability and integrity.

JOBBERS SHOULD CO-OPERATE.

The jobbers, with their money and their fine organization, should devote half their energies for the next few years, and if necessary over half their association funds, toward bringing the National retail organization up to where it can do effective work.

I am aware that many will view this last suggestion askance. But the danger of the retail dealer is the danger of the jobber. Their interests are absolutely one and identical, and what threatens the welfare of the one alike threatens the other, and the jobbers know it. To the small retail interests of the country the jobber is a necessity, and he is also a necessity to the manufacturer. He is not a necessity to the catalogue house, although some of our jobbers have heretofore allowed themselves to be used by these houses.

When each State association is ready to trust and merge its interests in the National organization, and when the jobbers' association can stop in the consideration of their strictly selfish interests long enough to see the importance of bringing all their strength and power to the aid of this National association, we can expect results. That the onward march of the retail Hardware association movement may speedily culminate in the early accomplishment of this complete National movement is my earnest desire.

Benefits of Organization.

BY C. R. KEATING, MT. AYR, IOWA.

There might be volumes written on this subject if we were to discuss the benefits that have been derived from a few of the more prominent organizations that have been in existence in recent years, but it is our aim to only call attention briefly to some of the benefits that have been derived, and that we may expect to derive. We may not be able to accomplish all that we would like to accomplish in the way of holding the Hardware business in the hands of the legitimate Hardware trade, but that we have accomplished a great deal along these lines is evident from the fact that we are receiving frequent communications from manufacturers and jobbers, stating that in the future they will sell only to the regular Hardware trade. Some of these same firms were a short time ago selling their goods to any and all that would buy, and in a great many cases placing them in the hands of our worst enemies. To-day they are doing all in their power to confine their business to the legitimate Hardware trade, and in many instances co-operating with the National Association.

ENCOURAGING SYMPTOMS.

These are, at least, encouraging symptoms of better business relations. When we consider the youthfulness

of our organization and the small number of regular Hardware dealers of the country that have as yet joined the association, the results thus far attained are surely most gratifying. When the great majority of all the dealers of the different States have joined their State associations, and will then be loyal to the National Association, we may expect still greater benefits from the manufacturers and jobbers.

THERE ARE TWO SOURCES

from which we may and do receive benefits through our organization. The first are the benefits that come from the manufacturers and jobbers in a general way through the influence of the National Association; the other is the individual and local benefits that are derived from the local or State branch of the association.

EXCHANGING EXPERIENCES.

I believe every Hardware dealer in the State of Iowa ought to become a member of the Iowa Retail Hardware Dealers' Association, and not only pay his dues, but attend the annual meetings and take some part in the same. There is not a Hardware dealer in the State of Iowa but has had some experience in his business that would be helpful and in many instances prove very valuable to some other member of the association. So let us make one feature of our meeting an experience



C. R. KEATING.

meeting, or what we Methodists term a love feast, where we may all come together and relate our experiences and have a good, profitable time.

HELPING EACH OTHER.

I fear that the great majority of us during the rush and push of the year's business manifest very little love and charity for our neighbor, who is selling Hardware in the next block. These things ought not so to be, and would not be if we were better acquainted with our competitors. The wise thing then for us all would be to lay aside the cares of business for two or three days in the year, meet together harmoniously and talk over our various troubles and difficulties, also our successes, with the object in view of helping each other. I am sure that we would all be greatly benefited and better prepared for the requirements of business in the future by so doing.

When we come in contact with each other we find that we are all built just about alike, and that we have just about the same troubles and discouragements to contend with. We will also discover that the problem that is making business life a burden to Mr. A has been successfully solved by Mr. B. But at the same time Mr. B is in trouble and is worrying over some other problem that has been solved by Mr. C, and so we might go the rounds until all have gained some useful knowledge from the experience of others.

GENERAL DISCUSSIONS AND INFORMAL TALKS.

To my mind the greatest benefits that have been derived from our organization in the past have come from the Question Box and the general discussions of the practical questions that have been before the house for consideration. Next in importance, I think, have been the informal meetings and the free and easy talks that have been indulged in very largely in the hotel parlors, at the dinner table, in the office, or it may be the street as we have come and gone from our place of meeting. It is in these informal talks that some of us can and do express ourselves that seldom have anything to say at a regular session. If there were no reason for this organization being in existence other than the benefits which the members derive from coming in contact with each other in the exchange of thought and purpose, the reason would be sufficient and the benefits derived ample to repay at least many fold for the time and money expended.

The financial benefits in dollars and cents to individual members might be dwelt on at great length, but this is of minor importance compared with the more desirable attainment of harmony and good will between competitors.

These thoughts are not only true of our own State meetings, but are equally true of the association meetings of the different States.

All the Hardware dealers that are not now members of an association should become so at once, and not wait until the next annual meeting, but send your name and dues at once to your State secretary. I am sure, from the plans that are being laid by the National Association that they will have some important and beneficial things to say to us as Hardware merchants in the next few months which they cannot say to us if we are not members of the Hardware dealers' association.

Credits.

BY E. R. MILES, MASON CITY, IOWA.

The subject of credits, as applied to everyday business life, is one that appeals to every member of this association perhaps more forcibly than any other branch of his business. His success or failure depends largely on the proper solution of this always present and troublesome question.

FAILURES IN BUSINESS

are due to several causes, not the least being the unwise granting of credits. A man starting in business with a limited capital and little knowledge of his business may succeed by close application and a careful nursing of his limited resources by refusing to extend credit only where the party asking it is known to him or can furnish good references.

Let us figure a little and see what the unwise granting of credit on a limited capital may cost. It means first the loss of interest on the amount of credit extended; it nearly always means interest paid on money borrowed to meet bills when due; it more than likely means loss of cash discounts on his entire purchases. Business, so far as the manufacturers and jobbers are concerned, is getting more nearly on a cash basis each day, and the dealer who does not take his cash discounts, or at least meet his bills promptly at maturity, is not considered a desirable customer, and as a result, is sure to pay a long price for his goods. To sum it all up, he both loses and pays interest: loses his cash discount, pays a premium on goods bought—all this as a result of too much credit. Does it pay? Is this statement extreme? Take it home with you and apply the parts that fit to your own business; you may gain thereby both profit and wisdom. In the above summary nothing has been allowed for bad accounts or additional expense in the shape of bookkeeper's salary, which should properly be considered a part of the credit system.

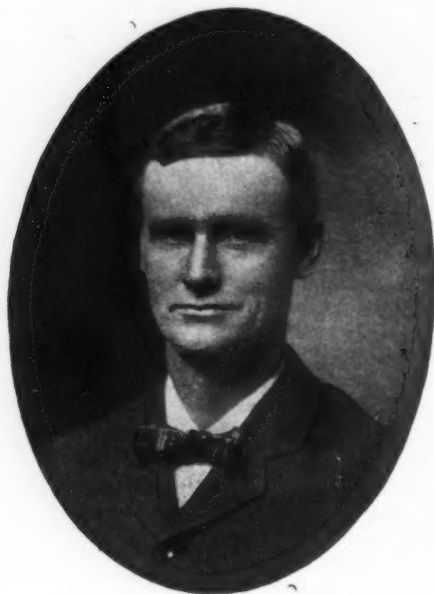
REASONS FOR GRANTING CREDIT.

Let us consider briefly some of the reasons for the granting of credit. A question probably every merchant doing a credit business asks himself a good many times each year is, How can I extend less credit and still maintain my present volume of business? I am inclined to the opinion that this one idea that we

must get the volume of business is directly responsible for the granting of credit a great many times against our better judgment. In our efforts to keep up or increase the volume are we not apt to often overlook the question of profit, thus extending credit at a sacrifice of profit? Perhaps the most common reason given for extending credit is that all our competitors are doing a credit business, and we must or lose trade. As there are, perhaps, as many other reasons as there are individual dealers, I will not attempt to give more.

GETTING TOGETHER ON CREDITS.

This and all similar associations have done a great deal of good for their members along the line of getting dealers together, thereby reducing to a minimum the fierce and unwarranted competition and cutting of prices. Why not extend the good work to the question of credits? Why not exchange with out competitors a list of doubtful or nonpaying customers, and make it the business of your credit man to consult these lists before extending credit, thus not only protecting ourselves but convincing our neighbors that we are not only willing but anxious to work with them in every way to make our business, as well as theirs, more profitable? Why not get together on the question of credits? We can safely do this; while getting together to fix prices is not only not feasible, but in many States it would be considered a combination and thus contrary to the laws of the State, it is not now nor is it ever



S. R. MILES.

likely to be contrary to the laws of any State for merchants to agree on a limit of time to which they will extend credit to a customer. If we are united on this subject our chances of getting business will be equal. There would be no need of secrecy on this score for fear of driving our customers to the catalogue houses, as we are very sure it takes cash to buy goods there.

Has it ever occurred to you that the credit system is in a large measure responsible for the existence and growth of the catalogue house? Put the entire country on a cash basis and I do not believe the catalogue houses would be nearly as numerous or prosperous.

CREDITS SHOULD BE SCRUTINIZED.

Are credits given the time and consideration they should be? Are we always careful in extending credit to know as much of the party asking it as we should? Would it be practical to ask for a property statement before extending credit, the same as we are asked to give before we are able to buy goods? You will say our customers are not used to this kind of treatment and would not submit to it. Why not start in now to educate them to it? Should not the credit business be handled by one man? Make that man feel that he is responsible just as much as the man that buys your goods.

Devote more time in the granting of credits and you will not have to devote nearly so much time to collections.

The extending of credits, to a greater or less degree, seems to be a part of the retail Hardware business to-day, and a great many dealers would not do a cash business if they could, believing they can do enough business by extending credit to justify the risk. The theory is, they can get more for their goods than for cash. Years ago this might have been true; to-day it is open to question.

CASH AND TIME PRICES.

How many of you gentlemen have a cash and a time price? Is it not a fact that your goods are marked at a profit that should mean cash? How many of you in marking your goods forget your competitor and mark your goods at a reasonable percentage of profit above their invoice value, adding freight and drayage and actual cost of doing business? Don't all hold up your hands at once.

It is not my purpose to say to you that the system of extending credit to your customers is wrong. I simply question the careless and indifferent way into which the retail trade has drifted in the handling of a subject of such vital importance to their interests. Can we afford to continue in the same channel? I have not attempted to give you any new theories on this subject, I have none to give, but if I have made any statement that will provoke a discussion of the subject I am sure that something will be said that will be of value to every member of this association.

Trusts in Their Relation to the Retail Dealer.

BY GEO. STAEBLE, EARLVILLE, IOWA.

The object of our meeting here is solely for consultation, and for the purpose of promoting our interests, to cultivate a more friendly intercourse with each other and to exchange our views as to how to conduct our business in the most advantageous way to ourselves.

We are not here to form a combination to advance the price of goods, nor are we here to antagonize capital invested in manufacturing plants which are engaged in a legitimate business, and distribute their product through the regular channel of the Hardware trade and to give us all an equal chance, provided we are worthy of it, and not abuse the confidence reposed in us. Let us be treated fairly and not arbitrarily, that we may not look with grave apprehension into the future. For we are well aware that the great power vested in trusts may be used with severity and tyrannical oppression. Yet we shall not beg for mercy, for we propose to maintain our manhood.

DEFINITION OF A TRUST

The subject for me to discuss before this meeting is "Trusts in Their Relation to the Retail Hardware Dealer." The question might be asked, What is a Trust. My answer will be, it is a combination of capital and a number of mills or factories merged under one management for the purpose of controlling the output of their product, and also minimize the expenses for marketing their goods, and establish such prices as the condition of the consumers' pocketbooks may warrant.

If the failure of crops should occur and the demand for their product should be curtailed, so many of their mills will be shut down.

Perhaps a few may be permitted to run, to supply a restricted demand. But the management will never permit an accumulation of their goods, only what business is absolutely in sight for future delivery, which are covered by orders on their books. While in a business sense this may not be objectionable, yet in my experience of the past it causes sometimes a shortage, when conditions of things change, and unexpected demands spring up; and we have to wait sometimes months before our orders are filled, and the goods may reach us when the season is past, so that they must be carried over by us for next year, which means a loss to the retailer.

There is one thing I must give the trusts credit for—they will select brains to manage their business. Mr. Schwab, as a representative of the steel combine, made a speech in Chicago some time ago, and proclaimed a

new idea in discussing trusts. He said that they are dangerous to the public, and that the combination of rivers make the mighty ocean. That is true. While they tap the ocean we, the little fellows, must be content if we can tap a keg of beer occasionally.

So they are thankful to the Lord that He created the ocean for their special benefit, as it takes great bodies of water to float their great enterprises.

Perhaps there was no time in the world's history when so many gigantic corporations were united under the leadership of J. P. Morgan, combining four heads under one bonnet, controlling the largest banks, the principal railroads and steamship lines, the produce of the anthracite coal fields and the American Steel & Wire Company. There is no power on earth, not even the Czar of Russia, equal to it. While I am not prepared to say the power will be wielded in a despotic manner, one thing is certain—it exists and can be made a weapon of despotism.

PUT THEM ON THE FREE LIST.

I notice sometimes that a trust is called an octopus. I will not believe it until I feel its tentacles in my side. It is also said if you are once in its embrace it is too late to shake it off. If that is true the only way I can see to prevent danger to yourself is to cut its tentacles off before it gets a thorough hold on you. Make it harmless by placing it on the free lists. If our defenders in Congress refuse to do it, send some one else that will do it, free of charge, in their place who is not the recipient of blood money gathered through the tentacles of an octopus. I was once told by one of those great trust magnates: "It is better when the pie is passed around by them to take a piece," which is all very well. But I believe with a large majority of you that such pie tastes bitter. I would rather eat my pie at my own table and made by my own wife, and so would you. I would rather not depend upon the generosity of any class of men.

INDEPENDENT MEN.

It is no wonder, under this system of concentration, that men are looking with grave apprehension into the future for the welfare of their sons, for whom they desire opportunities in business or as artisans, that they may not become mere servants of masters. Let us have independent men. They are not only the salvation of the community they reside in, they are also the main pillar of our national existence.

TRIBUTE TO I. L. ELLWOOD.

Many of us will kindly remember our friend, I. L. Ellwood, the former Hardware merchant, later manufacturer of Barb Wire and Field Fencing. How much the farmers of our prairie States are indebted to him, and the benefits derived from Barb Wire Fence in improving their farms is beyond any calculation.

The only failures to be recorded in its usefulness are those of General Weyler, when he attempted to fence in the Cuban rebels, while General Kitchener is trying to corral the brave Boer patriots with block houses and Barb Wire fences, and it appears that the general is kept awfully busy repairing his fences.

As a Hardware dealer Mr. Ellwood was a success. As a Barb Wire manufacturer he had no superior. It is a pleasure to me to refer to him as a big hearted friend. I know those who transacted business with him in former years will agree with me.

He was always ready to extend favors to those that were worthy of it. He never inquired how much cash deposit his customer had to his credit in his bank account, as the rule is practiced to some extent nowadays. There was no preferred party on his books. His customers were all treated alike, and we sadly miss him. It is to be regretted that when he merged into the steel combine he lost his individuality as a manufacturer. Perhaps from a financial standpoint he may be the gainer. Yet I would rather be an independent sovereign of a great manufacturing plant than merely acting as a lieutenant to a financial imperator. I think the former position is the proudest. However, it is immaterial how I feel about it. There are times in any man's life when he wishes to unload his burden on somebody else's shoulders.

SPIRIT OF THE PRESENT AGE.

It must be admitted on all sides that the spirit of the present age is to accumulate great wealth as individuals as well as nations. While wealth affords a great deal of enjoyment, yet it never raised its hands in favor of the oppressed.

They never produced a William Tell, nor a Washington, nor an Abraham Lincoln. On the other hand, plutocrats have produced in the past ages a Nero and a host of brutal kings whose very acts fill pages with horrible crimes against humanity. These brought on revolutions that overthrew the greatest Powers on earth and brought many powerful families to grief and destruction. Many estates of thousands of acres of beautiful land and forests, with hundreds of peons on it, not as well treated as our former Southern slaves.

Most all of the noble lords, despoiled of their property, have neither home nor fatherland. Their estates were divided and sold under the hammer of their very servants, whose descendants are to-day the middle class. Small farmers, happy and proud citizens of my native land. Such is Alsace.

I will lead you back fifty years, to the condition of my adopted country, in which I share its woes as well as its blessings. There were no trusts then. Those that are old enough remember how secure the people were in life and property; footpads and burglars were an unknown quantity. The American home was the ideal of happiness. The mothers of those homes, surrounded by a large circle of children, all bright, intelligent and industrious, no sports among them. Yes, she presided over her household with the grace of a queen. Always occupied with thoughts for the welfare of her family. Never locking the door against a stranger. A rap at the front door, and the response of a welcome voice from within, "Come in and be seated at the table," if it was meal time. There was no fear of tramps those days. Hospitality was the greatest virtue of the American people.

Yes, I will not forget, I will always cherish the memory of the noble American woman.

I simply cite those facts to show that there was more happiness in life those days than there is at the present, with all their concentrated wealth, which looks with suspicion on any one that approaches, in fear some enemy will lay violent hands on its person. It is getting so, those nabobs have to travel in private cars, with a body guard of detectives surrounding them. Well may I ask, What is life worth under such conditions?

STRENUOUS LIFE.

The cultivation of this so called strenuous life seems to degenerate in brutal sports, which maim and cripple many for lifetime. The softer and more humane qualities of the Saxon have been superseded by the domineering and brutal spirit of the old Norman corsairs, who were a holy terror to the people of Europe. In past ages those people were murdered and robbed by those human monsters, who never showed any respect for sex or age.

The same brutal spirit is permitted on the northwestern continent. The forests of that section are destroyed without regard to the future welfare of our country, and it is possible that our fair, productive land may become an arid desert in the course of time.

Government ought, by wise legislation, save some of our native forests for the welfare of future generations. The lumber trust will show no mercy until the last tree is cut and turned into dollars and cents, indifferent about the climatical effect it is bound to produce on our western country. We see every year more and more our streams drying up and our native timbers drying out for the want of moisture. I have seen only one piece of good corn in my section, and that was protected to the south by a native grove against the hot winds. The effect of such a calamity may seriously curtail the size of the dividends which are now declared by organized trusts.

I am watching the struggle of the Northwestern Governors against the railroad combine with a great deal of interest, and I am in hope it will result in favor of the people, so that the railroads will be compelled to

be reasonable in their charges, and not absorb one-half of their crops or produce, whatever it may be, to bring the other half to the market. No favorites should be tolerated. Pray, give us all an equal chance, and they will be recognized as public benefactors.

The question has come to my mind, when I read about the fiction that crops out now and then among the heads of those combinations, will they hold together? There is a great deal of denunciation going on among them at the present time. The "outs" want to get in, and the "ins" want to stay in. As a matter of fact they will stay in, not solely for the salaries involved, but also for the chances to manipulate the stock.

THE GLASS COMBINE.

Look at the glass trust. A friction among the glass manufacturers has sent down the price 40 per cent. within the last two months. I say the former prices were not legitimate, but pure extortion.

Why will a people that use this article in building their houses permit this imposition?

Why not demand that the extreme high tariff should be reduced? They have prospered in former years under a tariff of 30 per cent., why should they be permitted to exact triple that amount now.

That some of the trust magnates read their Bibles and learn some lessons out of it will not be questioned. They undoubtedly read that passage where it reads, "The rich man cannot enter the kingdom of Heaven, no more than the camel can pass through the eye of a needle."

Andrew Carnegie, the noble philanthropist, has taken his cue from that passage, for he is casting out his earthly kingdom and preparing himself for entering into the kingdom of Heaven. I say the Lord will bless you. Every trust magnate ought to imitate him.

Brethren retailers, right here where we shine, it is safe to say those trusts cannot combine heaven and hell; for the Lord Almighty will keep them separate forever. The good will get their reward and the bad get their punishment, and His judgment will be final forever.

While we little fellows can go to sleep, after our day's work, having carried our last dollar to the bank and bought our drafts to pay our obligations with, thankful that we are able to do that, though we know we have not another dollar in our pockets; knowing if the burglars pay us a visit during the night, we can tell them: "Take all you can get, but for God's sake don't wake up the children or make any disturbance in my house, because my wife is very sensitive about that." Turn around, go to sleep again, thinking what a darn fool that prowler must be to look for money in the pockets of a retail Hardware dealer. He might just as well look for a needle in a hay stack.

Another thing, our greatest fortune, our appetite is good, our stomachs are in fine order. We don't need to go to famous watering places every six months to patch up our burned out linings in our stomachs, like an old Tea Kettle; we don't need any French cooks to prepare our meals. We would rather trust our wives to do that, and have everything serene and happy around us.

This is not a dream or a vision, but a real fact. All we ask is to allow us our bread and butter, and lay up something for our declining years.

THE TRANSPORTATION QUESTION

is one of the most vital questions for your impartial consideration and affects our interest very materially. Freight bills during the year are quite an item with us, according to the report of the National Board of Railroad Commissioners of the United States. The railroad trusts are violating the national interstate commerce laws every day. It is stated that trust manufacturers are obtaining rebates on their shipments to their factories, also on finished goods to distributing points.

Is it any wonder then, that the magnates of the lumber trust are gradually getting possession of the retail trade? I find the old retailers gradually wiped out, and that yards owned and operated by millionaires and wholesalers have taken their places. The former owners have retired, or are eating that piece of pie that is handed to them by their masters. It will not be long

before the retailers of lumber will be a thing of the past.

Let those that are pessimistic on that score take warning, that one rod is easily broken, but when you tie together a bundle of rods they are not so easily broken, for in union there is strength.

That should be our motto, and if we fail to stand together in our own defense we are not worthy of any sympathy from the public. For they love to see a spirited fight, and particularly one that is in the interest of righteousness.

And if the other Representatives of Iowa hold the same views as the Speaker of the House does they will truly represent the interest of the trusts and not the people of Iowa. Let us hope that when it comes to final action on that question we will find some of them casting their votes for the relief of the people of Iowa, which is an agricultural State, and must seek the markets of the world for the overplus of its product. This question is not a partisan one. Every business man sees the drift of things, and if he is not directly interested in trusts he will side in with us and cast his influence for self protection.

No, we will not surrender without a struggle. We can appeal to courts for protection. I do not think any court will sustain any organization that is based upon fictitious value. The States should pass laws that will compel them to incorporate where the plant is located and hold the managers responsible to the laws of the State; and in case they should violate them, they ought to be brought into court and the penalties applied provided by law.

You may think that such course may not be applicable to trusts. I hope there will be no occasion to resort to courts; but in my experience of men they love power and are willing to exercise it, unmindful what a spirit of hatred they breed, which ends sometimes in the destruction of valuable property, as we have experienced in the past. I hope, if any grievances should arise, we may establish a court of arbitration and all differences may be amicably settled.

WHAT IS OUR REMEDY?

Firmness of character, resolved that you will use your influence as a citizen to favor such men as legislate for you in your own interest, instead of in the interest of trusts, who may advance prices beyond any endurance. In case they should succeed, let us form an alliance to buy our goods outside the trusts.

If the tariff is in your way, demand its modification. I am sure if the people once understood the situation they would stand by us, for they are interested in getting their supplies cheaper, and it is to their interest to have fair play in business. Prices should not be dictated by one head of certain lines of goods.

There are cases where men clothed with such power are reasonable and may not abuse their power, but it is better to be forewarned and armed for the defensive before you are surprised and disarmed and treated as prisoners and cease to be free and independent citizens of the United States.

A WORD TO THE TRUSTS.

Remember there is a Nemesis. In all my experience and reading of ancient history I find her following up the transgressors, whether individuals or nations. It is not necessary to name nations and great empires that have been wiped out. For instance, the Napoleons, who reached the zenith of military glory, finally ended their career of conquest, one at St. Helena, the other at Wilhelmshohe.

I remember well the year of 1846. We had a complete failure of crops in my native country, when a few speculators organized a trust, and bought up all the wheat in sight and stored it in a large warehouse. Flour was advanced to 12 cents per pound. I tell you a piece of bread tasted good at that time. I remember well when the speculators walked down the street to their warehouse, wherein 200,000 bushels of wheat were stored. When they came near the warehouse they discovered a black cloud of flies coming out of the upper windows. One of them exclaimed, "We are ruined; our wheat is gone." Upon investigation it proved to be true. The head of the trust became a raving maniac,

another committed suicide, and the balance fled the country to escape the penalties of the bankruptcy laws. I heard men and women say, "This is God's punishment, surely." Nemesis followed them up with vengeance.

We hear men say, "What a great man so and so is. Why he has cornered all the wheat or all the corn in sight, and the outside clique has been forced to the wall." I always feel sorry for the men that are laboring under such mental strain. But their turn comes and their combinations go down, and hundreds go to the lunatic asylum mental wrecks. And they call this a strenuous life, to be held up for the admiration of our future generation.

Our Competitors.

BY L. LINDBURG, DUBUQUE, IOWA.

Our good looking president wrote me to prepare a paper on the subject, "Our Competitors." When I was ready to go to work on it I took down the dictionary to see what competition was, and I found the following definition: "The act of endeavoring to gain what another attempts to gain at the same time and which, as a rule, only one can enjoy."

A glaring example of competition can be found in the efforts our country has been making lately to become



L. LINDBURG.

what is known as a "world power." We are spending millions every year in constructing battle ships, torpedo boats, cruisers, &c., not for the sake of doing anybody good that I can see. Disputes between nations could be settled by arbitration just as well as between individuals. This large expenditure of money is made merely to show the rest of the world how strong and powerful we are. Then by contrast we have to economize in other directions, and can only afford to pay our rural mail carriers, who have to furnish a horse and vehicle, the princely salary of \$50 a month.

LIVING TOO MUCH IN THE FUTURE.

Now as to our personal competition. You may think that I could have simplified my research by saying "A competitor is a man that is selling Hardware in the next block," and so he is, but not by any means the only one that you and I have. There are others. The department store, the catalogue house, the dry goods man who advertises his business by selling goods out of his line at cut prices, the peddler, the jobber and the manufacturer who sells to you and also to your customers, all of these are our competitors; and why, I ask you, Brother Hardwaremen, is this keen rivalry for trade, and you will probably say, "To make money." And why are we so eager to make money? Your answer will probably be, "So that by and by we can have a good time and enjoy ourselves." But do you realize that to many of us that

good time will never come? Do you realize that we all live too much in the future? We are going to enjoy ourselves next year and we are not going to the Hardware meeting this year; we can't afford it, but we'll go next year. We are ready to work day and night, not to enjoy ourselves, or help our fellow men and the community in which we live, but for the sake of making a fortune that we hope to enjoy some time in the future. When lo! the Grim Reaper steps in and all is over.

FOUR HOURS A DAY'S WORK.

John Brisben Walker, editor of the *Cosmopolitan*, holds that under our present labor saving system of doing work four hours should constitute a day's work for anybody, and I agree with him. Let me show you how this could be accomplished in our own line. In Dubuque, for instance, there are three Hardware stores within three blocks of each other. The proprietor of each one finds it incumbent on him to be at his place of business from 7 in the morning until about 7 at night, 12 hours. If these three stores were to consolidate and be run under one management the hours could be divided so that the three proprietors could each stand a trick of four hours, the first from 7 to 11, the next from 11 to 3 and the third from 3 to 7. The amount of capital required would be about half what it is now. The expense of rent, heating, light, taxes and clerk hire would be more than cut in two. But this Utopian condition cannot be realized for years to come, for no sooner would the two stores made vacant by this consolidation be idle than hopeful persons would be ready to take them and start new Hardware stores.

The time is coming when we will look back at this period in our history and see how foolish our present competitive system is, but as we cannot hope for any startling changes in the near future let us make the best of the conditions that surround us.

BE HONORABLE AND DON'T WORRY.

I would like to be able to tell you how to meet this manifold competition that besets us, but a wisdom equal to Solomon's would be required to do so. As we must compete, let us do so in an honest, honorable way. My advice would be to have your stores kept clean and attractive, show your goods willingly and cheerfully; don't misrepresent. Use common sense, apply the Golden Rule in your dealings with your customers, "Do unto others as you would have others do unto you," and don't worry. If you do this, under ordinary circumstances you should achieve success. You will not, in all probability, become wealthy, and right here let me say that wealth will not buy health nor happiness; indeed, both health and happiness are frequently lost in the scramble for wealth. If being a factor for good in the world, if being remembered by a grateful posterity, would be considered success, then Charles Dickens, for instance, would entirely eclipse our modern millionaires in having lived a useful and successful life.

DUBUQUE HARDWARE CLUB.

A few words before I close in regard to local competition. We in Dubuque have found that local organization helps wonderfully in smoothing the rough places in our business life. The better we get acquainted the more we realize what good fellows our competitors really are. Now and then the good ship, the Dubuque Hardware Club, runs afoul of the snags of misunderstanding and envy, and is severely buffeted by the winds of jealousy and egotism, but by throwing out the sheet anchor of moderation and charity she finally weathers the storm and her officers and crew are more loyal than ever.

If you and your fellow Hardware dealers don't fraternize in your town, get together right away in a nice, friendly manner. Take my word, you'll be all the better for it.

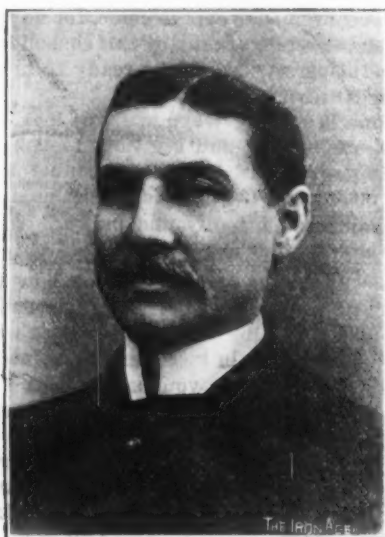
THE esteem in which Arthur B. Clarke, who was so long and prominently identified with the Old Dominion Iron & Nail Works, Richmond, Va., is held by those in the offices and in the works was evidenced February 27, when he was presented with a rich and elegant watch, chain

and locket. Mr. Clarke responded briefly, thanking the gentlemen for their kind thoughtfulness and for their long faithfulness and many courtesies. He referred to the esteem of one's fellow men as worth more than riches.

DEATH OF WILLIAM H. FOX.

WILLIAM H. FOX, the subject of this sketch, died at his home in Cleveland, Ohio, February 25. His health had been seriously impaired for several years, and for the last four or five years had increasingly interfered with his going about. The remarkable feature of the case was the successful way in which he held his trade through the later years under such difficult and discouraging conditions. During the latter part of this period, on such visits as he was able to make among his customers, he was accompanied by his wife, who was of considerable assistance to him.

William H. Fox was born in Brooklyn, N. Y., 48 years ago, his parents afterward removing to Connecticut. He began his business life January 2, 1870, as post office boy with Sargent & Co., who were then at 70 Beekman street. He worked his way through the various departments until, on August 28, 1874, he began to sell goods, first to the city and nearby trade and then



WILLIAM H. FOX.

on the road. His first territory was in Eastern and Northern Pennsylvania, later Western Pennsylvania and Eastern Ohio. Then he was given Pittsburgh and Northern Ohio, including Cleveland, Northern Indiana and all of Michigan except Detroit, he having made his home and headquarters in Cleveland since 1889.

Mr. Fox was a born salesman, highly regarded by his employers, associates and the trade, an unmistakable proof of which is the way he is spoken of by them all, and that through all his later years he was able to hold by correspondence, whether by mail, telegraph or telephone, a large and increasing trade in an important territory, through a season of unexampled prosperity, when the conditions were very exacting, Sargent & Co. not putting another man in his territory until the beginning of this year. Although his affliction had become incurable, his employers had decided on a fixed compensation, which was to be paid him as long as he lived. He was genial, alert and an exceedingly competent Hardwareman. Among his conspicuous traits were the representation of things exactly as they were and the possession of a fine, discriminating judgment. He was markedly self possessed and at critical periods would not lose his head. He kept himself abreast of the times and was well informed on what pertained to his business. He was undoubtedly one of the best of Sargent's salesmen. He took a good many orders that came to him from buyers by mail or otherwise which, in the last few years, he was unable to solicit personal-

ly, among last year's orders being some of the largest he has ever taken.

MISSOURI RETAIL HARDWARE AND STOVE DEALERS' ASSOCIATION.

THE new constitution and by-laws adopted by this association at its recent annual meeting are as follows:

Constitution.

ARTICLE I.

NAME AND OBJECT.

Section 1. The name of this association shall be the Missouri Retail Stove & Hardware Dealers' Association.

Sec. 2. The object of this association shall be to promote the interests of and secure the friendly co-operation of Hardware dealers.

ARTICLE II.

Section 1. Any person, firm or corporation in Missouri engaged in the business of selling Hardware and recognized as a regular retail Stove and Hardware Dealer in good standing, may become a member of this association by subscribing to this constitution and paying the annual dues prescribed by the by-laws.

ARTICLE III.

OFFICERS.

Section 1. The officers of this association shall be president, vice-president and secretary-treasurer.

Sec. 2. The standing committees shall be the Executive Committee, Trade Abuse Committee, and Auditing Committee.

Sec. 3. The president and vice-president shall be elected annually by ballot and shall hold office until their successors have been elected.

Sec. 4. The secretary-treasurer shall be appointed or removed by the executive committee.

ARTICLE IV.

OFFICERS' DUTIES.

Section 1. It shall be the duty of the president, or in case of his inability to serve, of the vice-president, to exercise supervisory control over the affairs of the association, sign all warrants drawn on the treasurer, preside at all meetings of the Executive Committee, and carry out and enforce all measures adopted by the association calculated to improve the condition of the Stove and Hardware business.

Sec. 2. The secretary-treasurer shall be under the direction of the president and the Executive Committee, shall receive all moneys, giving his receipt therefor, disburse the same only upon an order signed by the president, shall deliver to the president a bond within 30 days after his appointment in the sum of ———, furnished by some reliable bond company, the expense to be borne by this association. The secretary-treasurer is ex-officio secretary of all committees, excepting auditing.

Sec. 3. The Executive Committee is subject to the call of the president, and when so called their actual expenses shall be paid by this association; they shall fix the salary of the secretary-treasurer and fill all vacancies in offices. A majority of the Executive Committee shall constitute a quorum either by meeting or by correspondence. Three members shall be elected at each annual meeting, one for three years, one for two years, and one for one year.

Sec. 4. The duties of the Auditing Committee are to look over and pass upon the regularity of the receipts and expenditures of the association as defined by the by-laws and to report same to the annual meeting.

Sec. 5. The duties of the Committee on Trade Abuse shall be to take charge of all complaints and grievances that are sent to the secretary in writing, hear both sides of all controversies and adjust them upon such finding. In the event of being unable so to do they shall refer all matters to the president, who shall with his findings refer them to the National Committee for final adjustment.

Sec. 6. Amendments to the constitution and by-laws may be made at any regular meeting by a vote of at least two-thirds of the members present.

Sec. 7. All traveling men of Missouri who are in full sympathy with this association are eligible as honorary members on payment of \$3 for initiation fee, and \$2 per year thereafter, but have no right to vote.

By-Laws.

ARTICLE I.

The membership fee shall be \$3, and the annual dues \$3 for each year thereafter.

ARTICLE II.

Fifteen members shall constitute a quorum to transact business at any meeting.

ARTICLE III.

Each firm shall have one vote at any meeting of the association.

ARTICLE IV.

All fees and dues must be paid before a person can be recognized as a member or become entitled to act in this association.

ARTICLE V.

Upon all matters discussed in executive session no member shall speak more than once upon the same subject except by consent of the meeting, with time limited to five minutes.

OHIO HARDWARE ASSOCIATION.

CONCLUDING REPORT.

THE eighth annual convention of the Ohio Hardware Association, held at Columbus on the 25th, 26th and 27th ult., proved to be the most successful in its history. Not only did it exceed in numbers the one held last year at Cincinnati, but the sessions were more largely attended, and a greater interest was shown by the members. The convention hall being on the seventh floor of the Great Southern Hotel, the headquarters of the association, contributed much to the comfort of the members in attending the meetings and expedited the work of the association.

Probably the most important action taken by the association was the decision to join the National Retail Hardware Dealers' Association and to organize a mutual fire insurance company for the benefit of the members of the association.

Columbus was again chosen by a unanimous vote as the place for holding the 1903 convention.

OPENING SESSION.

In our last issue we referred to the proceedings of the first session on Tuesday afternoon, presenting Mr. Scott's response to the address of welcome by J. Y.



Bassell, secretary of the Columbus Board of Trade, and also his annual address as president, as well as the reports of Geo. M. Gray as corresponding secretary and W. C. Jones as financial secretary. In connection with these we published most of the papers which were read during the convention.

During this session T. James Fernley, secretary-treasurer of the National Hardware Association, was presented to the gathering and made the following remarks:

Mr. Fernley's Address.

It affords me a great deal of pleasure to face you this afternoon as representative men of such an important State—I might say in many respects the most important State in our Union. When summoned late on Saturday to a State further West, I noticed in our trade paper that the Ohio Hardwaremen were to have a meeting here to-day, and while I had not been favored with an invitation especially to come here, yet, having other business in Columbus, I felt that it would be of benefit to our association if I might have an opportunity to meet you, which opportunity has been very courteous-

ly extended by your officers, for which I thank them in the name of the association I represent. The work, the aims and objects of our association may not be fully understood by all of you, and if I can enlighten you in any way on these points, I shall feel the time has been well spent.

Mr. Fernley stated the number of members in the National Association, the number of traveling salesmen employed by the jobbing houses who were members, &c. He said that the National Association was in hearty sympathy with the retail Hardware associations of the various States. He said their association had done its utmost to induce trade to run in proper channels. He complimented the Ohio Association on its magnificent roll of members. He hoped that the time would come quickly when every Hardwareman in the State of Ohio and every State in the Union would be organized into an association.

Mr. Fernley read a resolution which had been adopted by the Retail Hardware Association of Illinois, wherein they expressed themselves as heartily in favor of every State association supporting and sustaining the National Retail Hardware Dealers' Association. He also read from the resolutions passed at the last annual meeting of the National Hardware Association. He said there was a strong tendency on the part of the retail merchant to support the members of the National Hardware Association.

Continuing, Mr. Fernley said:

I think it is well that you should know that such a thing as price agreements between the members of our association has never been discussed even on the floor of our convention. The members of our association have never entered into price agreements with each other, and in all probability they never will. We feel that there is an absolute necessity of our taking no chances, as an organization, of success. We realize that these people on the outside are very apt to use, and have indeed at times, the expression that we are in a trust or combine. In our association there is absolutely no trust and no combine. Our motto is, a high standard of business methods, and we stop right there. The object is to create more cordial relations between the members of the association. I thank you for the attention that you have given me and sincerely hope that I will never have to apologize for any wrong action of a member of the National Hardware Association.

At the close of Mr. Fernley's remarks the convention tendered him a vote of thanks.

Just before adjournment John F. Baker moved the following resolution, which was unanimously adopted:

Whereas, This association having learned that our fellow member, H. P. Davidson of Cleveland, has found it necessary to take up his residence in California on account of his impaired health; therefore be it

Resolved, That the secretary be directed to send Mr. Davidson our kindest regards, and to say that it is the earnest wish of every member of our association that his entire recovery may speedily follow.

WEDNESDAY MORNING SESSION.

J. P. Duffy, chairman of the committee appointed to look into the matter of membership in the National Retail Hardware Dealers' Association, made the following report:

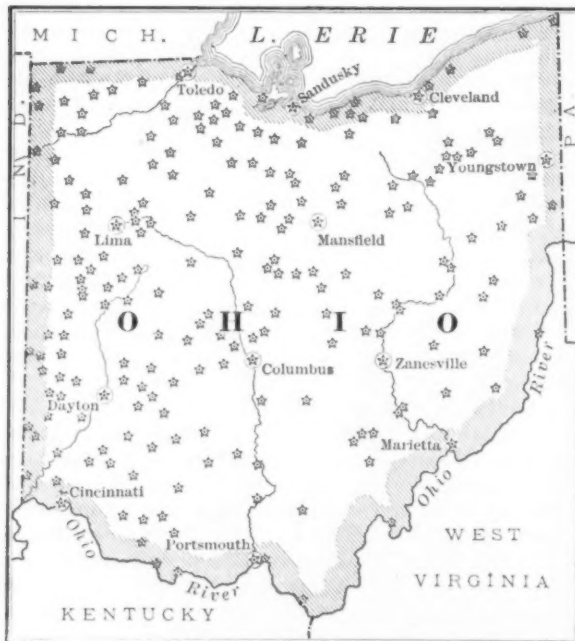
National Association.

Mr. Duffy stated that the by-laws of the National Retail Hardware Dealers' Association, as told last year, prohibited the Ohio Hardware Association from becoming members on account of the Ohio Association admitting to membership jobbers. He said that the committee attended the last meeting of the National Retail Hardware Dealers' Association and endeavored to arrive at some plan by which the Ohio As-

sociation could become a member of the National Association. He said that the result of their visit to the meeting of the National Association was the adoption of a resolution by the National Association, as follows:

Resolved, That any States whose local Hardware associations accept as members other than retail dealers the National Association will permit such State associations to work in harmony with us, but will accept as members only such members of State associations as are legitimate retail dealers, and their representation shall be the same as other States.

The committee recommended, Mr. Duffy said, that the Ohio Association indorse the resolution and urge the retailers to become members of the National Retail Hardware Dealers' Association according to their by-laws and regulations. He also recommended the election of two delegates to the next annual meeting of the National Association; also, that the retailers of the Ohio



HARDWARE ASSOCIATION MAP OF OHIO.

Asterisks indicate towns in which members are located.

Association be assessed an additional dollar on their dues to pay the National Association dues.

Mr. Bogardus, the other member of the committee, indorsed the remarks of Mr. Duffy. He said that the National Retail Hardware Dealers' Association was a great power, and that they could become a greater power if the Ohio Association would join them.

It was moved and carried that the report be received and placed on file.

Mr. Meyer moved that the Ohio Hardware Association join the National Retail Hardware Dealers' Association. Remarks followed by Messrs Rothwell, Duffy, Bogardus, Kehnast, Fouts and Baker in favor of the motion. The motion was unanimously adopted by a rising vote. It was moved and carried that the Nominating Committee be instructed to select two delegates to attend the National meeting.

A. Rothwell of Hamilton then read the paper entitled "Stoves," which was given in our last issue.

Lien Laws.

W. P. Bogardus, chairman of the Committee on Lien Laws, then presented his report, as published in our last issue. The report was adopted.

Mr. Smith, the secretary of the Lumbermen's Association, was introduced and addressed the association at some length in favor of the passage of bill No. 102, now pending before the Ohio Senate, being a bill to amend the present lien law of the State of Ohio. He said he did not agree with Mr. Bogardus that certain clauses of the Michigan law should be incorporated in the bill, as such had been practically declared unconstitutional by the Supreme Court of Ohio.

Mr. Bogardus argued in favor of the clauses referred

to in the Michigan law being inserted; that the Supreme Court of Ohio did not always adhere to its former decisions and its legality could best be determined by having them incorporated.

It was moved and carried that Mr. Wirt, the author of the bill now pending in the Senate of Ohio, be invited to address the convention on the bill in the afternoon. Mr. Bogardus was appointed as a committee to wait on Mr. Wirt.

Committee on Insurance.

The report of the Committee on Insurance, G. V. Guyton, chairman, was read by Secretary Gray. It was as follows:

Your committee appointed by the president to consider the question of mutual fire insurance, and to bring forward a plan for the organization of such an insurance company within our association, submits the following report:

Your committee is of the opinion that it is advisable to organize this association into a company for mutual protection against losses from fire, &c.

PREMIUM RATE TOO HIGH.

The rate of premium collected upon Hardware risks by the stock fire insurance companies is out of all proportion to the fire loss from such risks and must yield a handsome profit to the companies. There is, of course, some reason why Hardware risks should be rated fairly high. The character of the merchandise in the stock of such a business is such that, while the fire itself does very little serious damage, the water that must be thrown to extinguish even a small fire will ruin the salability of Shelf Hardware and make of a very insignificant fire an almost total loss. Again, many Hardware dealers carry also large stocks of Builders' Materials, Finish, &c., Rope, Cable, Rubber and Leather Belting, Paints, Oils, Turpentine, Alcohols, &c., which wares are often kept in the same building with the shelf goods or in warehouses but so slightly detached from the main building as to be a constant menace to the safety of the whole stock, for it cannot be denied that such stocks make hazardous risks. General stores in country villages carrying Hardware as a part of their general stocks are another element in this problem as presented to any insurance company, stock or mutual; such stores are usually located in places where there is no fire protection, or where there is very slight fire protection, and burn with alarming frequency, the resulting loss being total as a general rule; and always a material part of the loss is in the Shelf Hardware department, where the water thrown ruins the wares for future salability. Upon polished surfaces of Cutlery, Tools, &c., oxide of iron rapidly makes its appearance and the article, while still as serviceable as ever, is ruined as an article of merchandise.

IT IS A MAXIM

with insurance experts that mercantile risks and extra hazards always burn; that such risks may escape the flames for many years, but that, sooner or later, the fire is sure to arrive. With them, therefore, it is simply a question of getting such a rate as will compensate the companies for the loss that is bound to occur, and to show a balance of profit for dividends to stockholders after the loss is paid. It is no more than fair to say in this connection that your committee has not approached this question with any fixed opinion that the stock fire insurance companies are all composed of fools or rogues, but that your committee has assumed at the outset that much is to be learned from their practices. It is true that the fire companies, by combination where possible, get the best rate they can; but it is also true that there is much competition in the business, and competition always places a very definite limit on extortion. It is simply a question of profit—and your committee are looking in the direction of this profit that this profit may be saved to the members of this association. It is a part of the true history of the fire companies that their business results in some years in a net loss—that is, that the fire loss is greater than the amount of premiums received. It is also true that most fire companies make a dividend every year to their stockholders,

whether the premium receipts have paid the losses or not; but it is from their banking business that the extra money comes—from the interest received upon their surplus and accumulated assets—which surplus comes from the premium receipts of favorable years, of course. It is the constant endeavor, therefore, of the fire companies to keep the ultimate balance on the right side of the ledger and the stockholders satisfied. To accomplish this their rates must be high enough to yield a comfortable margin of profit, averaging one year with another, and any plan of insurance to be successful in operation must have for its foundation the same principle.

THE CONCLUSION OF YOUR COMMITTEE

upon this point is that our association should organize upon some plan whereby the members are in the position of the stockholders of a stock fire company; that the rate to be charged for protection be such as to safely cover the losses of average years, with a large loading to cover contingent liabilities; and that after the settlement of the current year's losses and expenses the excess premium charged be returned to the insured as a rebate or dividend in cash. Proper provision should be



W. P. BOGARDUS, President.

made in such a scheme for the settlement of losses contested or held up for the various reasons bound to occur now and then, and also to provide for the equalization of net losses and dividends from year to year; for this purpose the creation of a permanent surplus or safety fund would be necessary out of which the excess losses of one year might be paid, and to which the excess earnings of a more favorable year might be added.

THERE ARE TWO PLANS

upon which mutual fire insurance associations may be organized under the laws of Ohio, one way provided in Section 3634 of the revised statutes, and one way in Section 3686.

Section 3686 is as follows:

Any number of persons of lawful age, residents of this State, or residents of an adjoining State and owning property in this State, not less than ten in number, may associate themselves together for the purpose of insuring each other against loss by fire and lightning, cyclones, tornadoes or wind storms on property in this State; and may make, assess and collect upon and from each other such sums of money, from time to time, as may be necessary to pay losses which occur by fire and lightning, cyclones, tornadoes or wind storms to any members of such association, and the assessment and collection of such sums of money shall be regulated by the constitution and by-laws of such association. An association formed for the purpose of insuring against loss by fire and lightning, cyclones, tornadoes and wind storms may insure farm buildings, detached dwellings, school houses, churches, township buildings, grange buildings, farm implements, farm products, household goods and furniture in such buildings, and other property not classed as extra hazardous.

It will be observed that a company organized under this section of the statutes is strictly limited as to what class of risks may be insured, and may only insure persons who are members of the association, the language of the statute being "may insure each other." In the case of the State of Ohio vs. the Monitor Fire Association, it is decided by the Supreme Court:

These sections authorize such assessment to be made on members as may be necessary to pay losses which occur to members, and to pay incidental expenses; but any plan contemplating a profit or dividend is unauthorized. . . . An agreed annual deposit in advance cannot take the place of the assessment levied upon each member to pay losses.

Thus, it will be seen that, if organized under this section of the statutes, it would be beyond the legal power of the company to issue policies to any persons not members of the association; to collect an annual premium in advance from its policyholders; or to make any profit or dividend to the members of the association.

THE OTHER PLAN.

As it is a part of the contemplated plan of our association to insure dealers not members of our association, it will be necessary to organize our company under Section 3634 of the revised statutes, which is as follows:

Sec. 3634. . . . nor shall any company on the plan of mutual fire insurance be incorporated until not less than \$500,000 of insurance, in not less than 200 separate risks, no one of which shall exceed \$5000, have been subscribed and the premium thereon, for one year, paid in cash, aggregating not less than \$10,000 in cash, each subscriber agreeing, in writing, to assume a liability to be named in the policy, subject to call by the Board of Directors in a sum not less than three nor more than five annual premiums. And the same liability shall also be agreed to in writing by each subsequent subscriber or applicant for insurance, who is not a merchant or manufacturer. And each subscription before incorporation shall be accompanied by a certificate of a justice of the peace of the township or city where each subscriber resides, that the subscriber is, in his opinion, pecuniarily good and responsible to the extent of the contingent liability agreed to be assumed. Mutual fire insurance companies organized under this act may thereafter charge and collect in advance upon their policies a full annual premium in cash, but such policies shall not compel subscribers, insured or assured, to renew any policy nor pay a second or further annual premium. Any such company must in its by-laws, and must in its policies, fix by a uniform rule the contingent mutual liability of its members for the payment of losses and expenses; and such contingent liabilities shall not be less than three nor more than five annual cash premiums as written in the policy; but such liability shall cease with the expiration of the time for which a cash premium has been paid in advance, except for liability incurred during said time; but nothing in this section shall apply to associations for the mutual protection of their members against loss by fire heretofore or hereafter organized as provided in section 3686 of the revised statutes.

Under this section of the statutes our association may organize an insurance company for the purpose of underwriting the fire losses of the members of our association and outsiders also, confining the kind and character of the risks to be assumed within such limits as may be desirable by the constitution and by-laws of the company, fixing the premium rates at such amounts as may be considered sufficient to safely cover losses and expenses, providing for a cash surplus or safety fund, and for the repayment in the form of rebates to members of the excess premium, if any remain after the losses, expenses and fixed charges of the year are provided for.

SPECIAL COMMITTEE SUGGESTED.

The details pertaining to the organization of such a company should be referred to a special committee appointed for the purpose with full powers in the premises, and with authority to employ such expert assistants and legal talent as may be necessary to carry out the plan of organization decided upon. Accordingly, your committee leaves this branch of the subject with the simple recommendation that a mutual fire insurance company be formed within our association for the purpose of underwriting the fire losses of the members of the association, and of such other Hardware dealers as may apply for policies of insurance upon our plan and at our terms.

For its information your committee made some inquiry as to the experience of existing mutual fire associations, and it was after learning how very satisfactory has been the business of such associations that the recommendation above made was decided upon.

ONE OF THE SUCCESSFUL ASSOCIATIONS

of the kind contemplated by our association is The Ohio Millers' Mutual Fire Insurance Company of Canton, Ohio. In a letter written for the chairman of your committee, William H. Clark, secretary and treasurer of that company, says: "Our company has been unusually successful in every particular, its present net premium charge being only one-half of the basis rate." And in a note appended to the sixteenth annual statement of this company, being the year 1901, the company say:

During the whole course of their business, to and including December 31, 1901, the company sustained losses by fire aggregating \$527,314.08, none of which remained unpaid at that date. For the same time rebates or dividends to its policy holders amounted to \$437,385.31, considerably more than half of which was rebated during the last four years.

The last statement of this company shows that the net assets, consisting of cash in office and banks, stocks and bonds, collateral loans and deposits and assessments, are \$275,459.27, added to which the face value of premium notes, \$696,343.96, makes the total gross assets of the company \$971,803.25. The actual liability of the company is the legal reinsurance reserve, \$45,896.66, leaving the company net assets of \$925,956.59. At the end of the year 1901 the company had at risk \$5,555,337.50, and the losses for the year were \$97,102.90.

ANOTHER SUCCESSFUL COMPANY OF THIS SORT

is the Lumberman's Mutual Insurance Company of Mansfield, Ohio. The last annual statement of this company exhibits net assets of \$245,343.41, with liabilities of \$26,274.24, which is the legal reinsurance reserve; treating the contingent assets as a liability, the company have a net cash surplus of \$60,987.98. The company had at risk at the close of last year \$2,081,476.74 in 1152 policies, and the total expenses of management last year were \$37,934.80, which amount includes the year's losses—\$11,545.46. From a lumber dealer, resident at Lima, your chairman learned the following facts: The old board rate in Lima was 2.5 per cent, which rate was later reduced to 1.6 per cent., the present rate. The net rate of cost to this member of the Lumberman's after his rebate was received last year was about 1 per cent., and this gentleman's experience in his company has been very satisfactory ever since he has been a member. A copy of the by-laws of this company is attached to this report.

YOUR COMMITTEE WOULD RECOMMEND

therefore, the organization of our company upon the cash premium plan, whereby the premium shall be paid each year in cash, and the additional liability required by the statute written in the policy; that no member be personally or individually liable for losses, or expenses or indebtedness of the company to any amount beyond the liability above assumed; that the premium charged be the regular premium charged in the same place by the stock fire insurance companies; and that the excess premium, if any, be rebated or paid as a dividend to the policy holders after the close and settlement of the current year's business, provision being made for an adequate surplus.

It was moved and carried that the report be adopted.

Mr. Bogardus said that he was in Cincinnati and heard the report of the Lumbermen's Association. Their report showed that they had made a saving of 25 per cent. last year—25 per cent. of the amount of money they paid for insurance was returned to them in the shape of rebates.

Mr. Carlson moved that the president be empowered to appoint a committee to go ahead and organize an insurance company for the Ohio Hardware Association. The motion was seconded, and unanimously adopted. The president announced that he would appoint the Insurance Committee in the afternoon.

WEDNESDAY AFTERNOON SESSION.

The president called for a report of the Grievance Committee. Mr. Bogardus of the committee said:

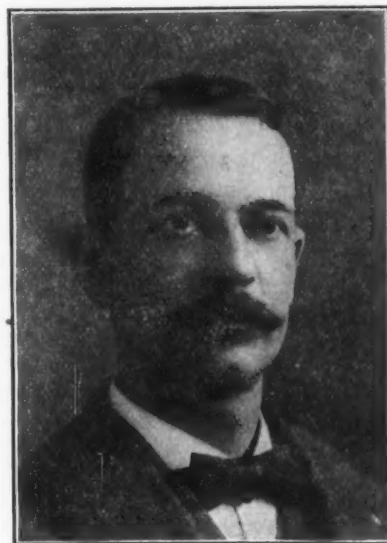
There have been six cases of complaint during the past year. All of these have been amicably settled but one. Another case we had, which was a very stubborn one, has been settled. We had a telegram this morning to that effect. We congratulate the association on the happy termination of the case.

The committee wish to bear testimony at this time to the faithful work of the secretary in connection with the Committee on Grievances. The association will see by the correspondence in the case about to be submitted to you what a large correspondence is necessary to be done to get a settlement in cases of grievances. Your committee submit the case above mentioned, and ask the secretary to read the correspondence.

Senator Wirt on the Proposed Lien Law.

At this time the presence of Senator Wirt was announced, and he was asked to address the convention on the subject of the proposed lien law before the Legislature. Senator Wirt said:

You probably all of you are aware of the chaotic con-



W. C. JONES, Financial Secretary.

dition of the lien laws in the State of Ohio to-day. I happen to be aware of it from two standpoints—one as an attorney, having had to try and enforce what if any lien law we had in the State, and the other as a builder, being connected with one of the largest lumber institutions in my section.

Six years ago, I believe, the Legislature of the State of Ohio undertook to repeal a portion of the lien law—practically all of it, and to re-enact another one.

At the risk of being a little egotistical I desire to say that I condemned the law at that time, and told my clients that I did not believe it could be enforced in this State. The courts were resorted to with the result, as most of you are aware, that the law was declared unconstitutional, or parts of it.

Now that is the condition we find ourselves in to-day. We don't know whether we have got any law or not.

Every one of you when you furnish material are absolutely in the hands of the man you are trading with and have got to rely upon his honesty, or if he is not honest on the ability to recover from him on execution. I believe we have gone as far in this State as it is safe to-day to go, and to-day we have before our Legislature a lien law, which has been introduced in the Senate and is now in the hands of the Judiciary Committee, and I hope that it will be reported back the early part of next week and passed by that body.

I believe that we have got an act here that will furnish a practical protection to all of the men in the building and furnishing business to-day. We have in this

bill to-day that which I had been very anxious to have—there has to my mind always been too much machinery in protecting, not the head contractor, but the material man, the subcontractor and the laborer. I believe that when the notice is served by the material man, the subcontractor and the laborer upon one of the contractors, and that notice is placed upon the records of the county, that that should be sufficient to give every person who took those steps a lien upon the property and upon any money that remained in the hands of the owner or contractor.

Now with that done it seems to me that it gives to you a full and complete protection. I believe it is as well and complete as it can be made and enforced in this State.

Mr. Bogardus moved that the association indorse the action of the Lumbermen's Association and do all they possibly can to push through bill No. 102, indorsed by Senator Wirt. The motion was seconded and carried unanimously.

J. H. Smith of Smith Bros. Hardware Company, Columbus, read the paper on "The Travelling Man," as presented in our last issue.

The president announced the appointment of the following committee to organize an insurance company for the association: W. P. Bogardus, Mt. Vernon; G. V. Guyton, M. B. Tallmadge, Chas. S. Johnson, C. W. Jewell.

QUESTION BOX.

Mr. Rothwell of the committee read the following questions from the Question Box:

1. *Where does Hardware begin and where does Hardware end?*

The President: I know where it began; it was when "Old Time" took the Scythe and killed Abel. Cain did it, but it was Old Time just the same.

Mr. Rothwell: Undoubtedly the object of the inquiry is to see what constitutes Hardware in other words.

Mr. Carlson: I think the inquirer can get that information from the Simmons Hardware Company.

2. *What is your percentage of expense to gross sales?*

Mr. Jewell: I don't know whether this is a home secret or not. I don't know that my answer would do any one any good. I don't run just a Hardware store, but I run a job shop, too, and I pay \$1650 each year for what I call productive labor. I call it expense. It is all charged up to expense, the same as horseshoeing or blacksmith bills. With a close conservative estimate, allowing that \$1650 to be called expense rather than productive labor, my expense has been for three years about 10 9-10 per cent.

3. *Do you figure freight as merchandise, or do you charge same separately?*

Mr. Bogardus: It is absolutely impossible to figure your freight on each item and charge it up to cost of goods. Better add it to expense.

4. *Why should not Stove manufacturers conform themselves to 6 and 7 inch Stove collars?*

Mr. Fouts: I believe they will if you ask them. I had a case like that and they complied with my request.

5. *Should Stove dealers furnish repairs for Stoves purchased from catalogue houses?*

Cries of "No!"

6. *Do you handle Paints and Oil and if so is it profitable?*

Mr. Fuhr: Handle a good Paint and keep a good stock and you can sell it.

W. B. Scott: If you get a fair profit on your Paint and get the cash when it goes out, it ought to be a desirable product to sell.

7. *Is it desirable to handle Agricultural Implements in connection with Hardware?*

8. *Does it pay Hardwaremen to handle ready made Harness?*

The President: Now talk about Harness and Implements.

Mr. Spore: I think it does. I think the first stock of Harness I put in amounted to \$1000, and before the season was over we bought over \$3000 of Harness and never advertised it. I think it is a good, profitable business. I don't think I make any money on Implements. I handle Implements because it brings in other trade. I have a man who attends to that department. I don't think there is any money in the Implement department.

Mr. Cummings: It depends entirely on the farming community around you. If there is a good farming community you can sell Implements. There is a good profit in Implements, a good profit in Plows—as well as the castings connected with them—25 or 30 per cent.

Mr. Carlisle: It depends largely on location. There used to be a good business in Implements at Cambridge, but the Implement business has practically dropped out. The coal interests have destroyed the Implement business.

9. *How do you figure your percentage of cost and what is it?*

Mr. Riddle: It seems that in figuring cost it is really much higher than some of us think. If you think the matter over carefully I think you should add, not only the rent of your store, but the freight and the insurance and everything else of that kind as a part of the cost of doing business. It was difficult to get the freight back in case of fire, where you have not added it on to the cost of your goods. There is another thing you want to take into account in the cost of doing business, and that is your time. It is worth something, and the real cost of doing business should include also some compensation for the work you do. It has been discussed in the Wholesale Hardware associations as to whether the amount of capital should not also be included as a part of the cost, to show what the profit is above the interest on the money invested. You would probably be surprised to find what a small amount of profit there is in the grocery business above the cost figured in that way or in the Hardware business. I don't think it would exceed 3 per cent. on the sales.

Mr. Bogardus: I would like to know how a man is going to figure the cost of his goods when they come in. You cannot tell what the cost of your insurance is. You cannot tell what your other expenses are. I would charge it up to expense and at the end of the year, when you invoice, add your expense and strike a pro rata. That is about the only way you can get at it. We cannot put the actual price on the cost of the goods when they are delivered. You don't know how much coal or gas you are going to use and the various other things.

A delegate: How can he determine the rate of expense or per cent.?

Mr. Bogardus: At the end of the year I figure up my expense account. I know how much it costs me to sell a certain number of goods and I approximate. The only way I can arrive at the cost of doing business is at the end of the invoice—to figure how many goods I have sold during the year; what the gross profits were, and then I find out what the net profit is; then on the invoice for the coming year I put on a certain expense—what my conscience and competition will allow.

10. *Whose fault is it that your competitor is not your friend?*

Cries of "Your own fault."

11. *Are there any objections to the female drummer; if so please state them?*

A member suggested that he had no objections to the female drummer because he had a female clerk. The question ought to be added: "Is there any objection to a female clerk in a Hardware store?"

12. *What do you think of extending credit to the man who is good pay by law, but very slow by friendly dunning?*

The President: I will say that depends on the size of the profits you get on him altogether.

THURSDAY MORNING SESSION.

The first number on the programme was an address by C. W. Jewell, on the subject of "Honorable Success." Mr. Jewell said, in part:

Honorable Success.

There are two kinds of failures in the world. Bradstreet's says that failures are of two kinds, first, those caused by those who fail dishonorably—dishonorable because they ought to have been cured; and a second class of failures caused, not by the faults of those who failed—honorable because Bradstreet says they could not help it.

LAST YEAR THERE WERE IN BUSINESS in these United States 1,201,862 firms and incorporations. Of this number 10,648 failed. Bradstreet gives as the first eight causes of dishonorable failure: Incompetency, which amounted to 19 per cent.; inexperience, amounted to 7.8 per cent.; lack of capital, 30.3 per cent.; unwise credits, 3.6 per cent.; speculation, 2.3 per cent.; neglect of business—and that means dissipation large-



J. B. CARSON, Member Executive Committee.

ly—1 per cent.; personal extravagance, 3 per cent.; fraudulent disposition of property, 4.4 per cent.

Now there is one other thing I wish to say: that 91 per cent. of all the failures in the United States were those worth less than \$5000 capital. After a man gets to be worth \$5000, according to Bradstreet, the chances of his failing are only 3 per cent. Inexperience kills 7 per cent. of the business men. Now the ordinary university college would not permit the strongest and best young man of the community to go into their football team unless he was thoroughly trained, and yet we expect business men to go into business and succeed without training; and I want to say this to you, that it is not the new men who fail. Last year was a year of heavy increase in the number employed in business, and yet the failures increased only one-fourth.

PROFIT AND SUCCESS.

There are two elements in business, and only two. The first is the element of profit; the second the element of success. After a man has done business one year in one community he can tell very nearly how much it costs to do business. He can tell very nearly how many goods he can sell. Then it behooves him during the second year to sell more goods with the same expense.

In a farming community where I am placed you can cut the price all you please and you could not sell another joint of Stove Pipe more than that community demands to save your life.

CUTTING PRICES.

Some one has said that you are not to cut your price. I believe that; yet I don't do it. The church committee, the preacher of the gospel, charitable institutions and 49 other things come to you in a year with this plea—we

want a special price. I grant some of them. If that item amounts to \$2000 in a year's business you have taken \$200 out of your expense account.

SUCCEEDING HONORABLY.

Now the question comes how to succeed honorably? What is success? The world terms success the attainment of wealth. That is the world's idea of success. My topic is honorable success. It may be the accumulation of dollars; it may be failure as we have shown; it may be just the eking out of an existence. I have been taught—but I did not get this from Bradstreet's—that 90 per cent. of all business men fail; that 5 per cent. get rich, and that 5 per cent. die in the harness. I am not here to vouch for that statement, but it is told largely as a fact. So, then, if we are honorable and die in the harness, it is greater wisdom than to gather gold and die in dishonor.

I believe a business man has a right to expect success just as much as a farmer has a right to expect a crop of wheat when he sows.

F. A. Powers of Norwalk then addressed the association on "Some Hardware Don'ts." Mr. Powers' paper was published last week.

The president expressed his gratification with the splendid attendance at this session. It certainly showed the way the wind would blow in the future of the organization. There were present a number of new members, from whom the association would be glad to hear as to their opinion of the organization.

Several delegates who had recently joined the association made remarks in which they expressed themselves as highly pleased with the association. They said that they had been well repaid for coming to the meeting; many said they were sorry they had not joined the association before.

Mr. Guyton moved that a vote of thanks be tendered to the gentlemen who had given their time to addressing the convention on the various subjects. The motion was unanimously carried.

W. P. Lewis' Address.

The president called for remarks from W. P. Lewis, president of the National Retail Hardware Dealers' Association, who was present. Mr. Lewis addressed the convention in part, as follows:

I thank you for this invitation to address you. I am particularly glad to know of the action that your association took yesterday afternoon in determining to become members of the National Association.

The necessity for a national association is not questioned in the minds of those who are at all familiar with association work, and the necessity for a strong financial condition of the National is also well understood.

Mr. Lewis detailed at some length the means that had been pursued by the National Association to raise funds. He called attention to the manual issued by the National Association, from which considerable revenue was expected to be derived.

Mr. Lewis related several instances showing the power that the National Association possessed in settling grievances and adjusting business relations between the manufacturer, the jobber and the retail dealer.

In conclusion he said:

So I say you have not made any mistake by joining the National. The only people in the State of Ohio to day who are making mistakes are the men who are in the Hardware business and don't join your association.

THURSDAY AFTERNOON SESSION.

A telegram was read from the secretary of the Kentucky Association, sending greetings and hoping the Ohio Association would join the National Association.

Mr. Baker introduced a resolution in behalf of several of the gentlemen, who were present with their wives, that the thanks of the association be tendered to the local dealers of Columbus for the courtesies that had been extended to the ladies, and also for the many courtesies that had been extended to the association. The resolution was unanimously adopted.

Address of Hon. F. B. Willis

Hon. F. B. Willis of Hardin County addressed the convention on "The Iron Industry." Mr. Willis made a very interesting and eloquent speech, and was listened to with close attention. After referring to the matter of international morals, the desirability of a permanent condition of peace throughout the world, the development of the United States into a great world power and the phenomenal progress of the universe during the past 100 years, Mr. Willis spoke as follows in regard to the development of this country's resources and its present position, making special reference to the part played by iron and steel in this transition:

And then we want to invite your attention to another thing—that is, we are now a great industrial factor—not simply in the international sense, but I mean in the material sense. I undertake to say that there can be found nowhere else upon this planet a country that is blessed with such tremendous mineral and agricultural resources as we have in this country. We will look at our farm—we have 1,000,000 acres here in the Mississippi Valley—the biggest and the best farm that the eye of man ever rested upon; a farm which the chief of the United States Bureau of Statistics says is capable of supporting a population of 400,000,000 people. We have that farm, and then we have the untold mineral wealth. We have the iron, we have the coal. Why, did you ever stop to think, my fellow citizens, that, leaving out the Chinese Empire—nobody knows what they have got there—but leave out the Chinese Empire, the United States of America has more than double the coal area of all the balance of the world put together? There was a time when it was said that we could not mine much coal here, that we could maybe take out enough to keep our industries going, what few we had; but our coal area did not amount to much, and yet we produce annually now about 28,000,000 tons of coal, and there is plenty more there. And then when it comes to the oil business—my friend Guyton and I live off up in the Northwest, where we can smell the delicious odor of the oil fields, and while the world is producing something like 2,000,000,000 gallons of petroleum every year, our country produced more than half of that; and while we are the biggest eaters in the world, while we are the best fed people you can find anywhere on this planet, you know that we raise something like 600,000,000 bushels of wheat every year, and out of our bounteous plenty send over to the starving nations of Europe 101,000,000 bushels of that wheat, and then to be sure that they had enough to get along with, we sent them for good measure 18,000,000 bushels of flour; and then we send them about 500,000,000 pounds of beef products and about 1,500,000,000 pounds of hog products every year, and that business is growing all the time. Now, how is such a thing possible? It comes, in the first place, I think, from the tremendous natural advantages that we have. Here are great mountain ranges lifting their rocky summits into the skies. They are standing there as God's great safes in which He has locked the mineral wealth of the earth. He has put it in there and locked it with time locks set to the advent of the railroad and the telegraph, and the railroad and the telegraph have come and those great safes have been opened, and we see as a result of that the tremendous advancement of the iron industry of this country.

Why, gentlemen, are you aware that we sent out of this country—a country which only a few years ago had to buy nearly all these products—something like \$140,000,000 worth of iron and steel products? And while the world produced about 50,000,000 tons of steel last year, are you aware that we produced about 16,000,000 tons of that steel—one-third of the total products of the world?

BALANCE OF TRADE.

Then here is another thing. I am sure that you are noticing in your trade journals how we are selling within the last 10 or 12 years in localities that we had not heretofore dreamed of. We have been sending locomotives

to England, and steel rails to Australia, and Nails to South America, and so on the world around. We are distributing the products of our busy mills, mines and factories. Now, in that connection, I want to invite the attention of this country to two or three facts and then I shall have done, because I know that you have a whole lot of business to attend to this afternoon. Now one of those facts is this: I have just pointed out to you that you are shipping out, as the product of the iron industry of this country, every year something like \$140,000,000 worth. You are contributing to the tremendous balance of trade in favor of this country—a balance of trade which no other country can equal. Why, the balance of trade in favor of this country every year is considerably greater than the total export trade of one of our great rivals—namely, Germany. Our balance of trade is about \$600,000,000 per year. On the other hand, the balance of trade against our three great rivals—England, France and Germany—is almost \$1,000,000,000 a year—over on the other side of the ledger, don't you see?

DOING AWAY WITH PROTECTION.

Now here is a fact that I want you to think about. It is a proposition that the business men of the country must solve. I think the solution must emanate not simply from the business men as a class, but from the men that are interested in the iron and steel business. I want you to think of this fact, and I hesitate to say this for fear some of my friends here will think that I am trying to talk politics, and the only reason why I dare say this is because any one should think it would be absolutely against political opinions that I cherish. The fact I want you to get is this: For a good many years our country has been, either rightfully or wrongfully—I don't undertake to discuss that—our country has been saying that the industries of this country shall have a preferment; that the strong hand of the Government shall protect those industries, and I for one am perfectly satisfied that that was good policy. But look here, gentlemen, you must be reasonable, and if you are not I undertake to say that the day is not very far off when you will see the handwriting on the wall, when the United States of America is able to produce iron and steel more cheaply than it can be produced in any other country on this planet.

I want you to know that the people of this country are going to demand, sooner or later, that the Iron and Steel business be not protected by the Government to the extent that it has been protected before. There is a great economic problem that I say you Hardwaremen ought to be thinking about. You ought to be formulating some policy upon that point.

Here is another thing: Not only are we supplying our market, but we are beginning to reach out and look for other sources of income—looking for other demands that we may meet—and I want to point you in that connection to the magnificent field that is opening to the iron industry of this country, away off down yonder in the Southland.

FOR OUR MANUFACTURERS TO CONSIDER.

Can any man give me a valid reason why a German manufacturer should make Hatchets and Axes and Nails and Spikes and Bolts and send them down to Central America or to Mexico or to South America and drive us out of the business—drive us right out of our own dooryard, so to speak? Whose field is that? I shall be frank enough to say that I think that some of that field resides in the iron industry of this country. They ought not to permit such a thing to be done. Our manufacturers, if you please, are somewhat to blame. I notice a thing in one of the consular reports not long ago, a consul somewhere down in Brazil made this report to his Government. He said: "There is a people down here who want a particular kind of a Hatchet; they want their Hatchets all blued." Now, you Hardwaremen know what that means, I guess. They wanted them finished up in a certain way. Well, now, he sees the German manufacturer and the English manufacturer are very careful to find out what the people want. It

may be that a blued Hatchet is no better than a Hatchet finished up in some other way, but if these people in Brazil want blued Hatchets it is the business of the people that want to get trade to sell them blued Hatchets, and not to try to argue with them.

He says the difficulty with our people has been that we have been trying to convince the Brazilians that some other kind of finish, or some other shape, is a good deal better for them. I say, gentlemen, that barring some little accident like that, there is not any kind of reason that any man can give why our country should not supply the growing demands of Mexico and Central America and South America. That great market lies at the very door of the iron industry of this country, and I say that the time is not very far off when we are going to avail ourselves of our natural advantages and control that market.

CONSUMPTION AT HOME.

Another thing that I want to repeat in this connection: We want to be very careful while we are reaching out for new fields to conquer, while we are reaching out for new sources of demand, we want to remember that of the \$1,500,000,000 worth of products that were produced in this country last year, over twenty million dollars' worth of those products were consumed here at home—over 20.21 per cent. of the total consumption that was given to the products of this country came from sources right within the confines of our own country, and I say, that in the advancement we make in an economic way, we want to be careful that in reaching out for the small things—in trying to increase our foreign trade, which now amounts to \$1,500,000,000 per year—we don't allow this greater portion to slip away from us.

IRON INDUSTRY THE CENTER.

I have already detained you longer than I intended to. Permit me to say in closing, that I think that the men who are engaged in the iron industry of this country were never any more prosperous, never in a more satisfactory condition, in a business way, than they are at the present time. The future was never more bright, radiant and rosy. And there never was a time when the people of this country were more largely indebted to that great industry than they are right now. I tell you that the condition of the iron trade in this country—the condition of the Hardware business—is a pretty good barometer to show what the condition of other kinds of business is.

Let me go further and say, that if your iron industry goes down, if the great steel mills of Rhode Island, Pennsylvania, Alabama and Tennessee close their doors and bank their fires—if those great smokestacks cease to emit their great volumes of smoke, which are the pillar of cloud by day and the pillar of fire by night, beckoning on this nation to higher accomplishments in the industrial world, if those mills are closed and those fires are smothered, that the other industries of this country are damaged irreparably. In other words, I want to leave with you as the closing thought this undoubted fact, that the iron industry of this country is the very center of all the industry of this country.

At the conclusion of Mr. Willis' address a vote of thanks was tendered by the association.

A resolution was adopted that the secretary be directed to extend the thanks of the association to the Hallwood Register Company of Columbus for their kindness in giving them the use of their Cash Register during the sessions of this convention.

Election of Officers.

The following officers were chosen for the ensuing year:

PRESIDENT, W. P. Bogardus.
VICE-PRESIDENT, L. F. Stahler.
CORRESPONDING SECRETARY, D. R. Burr.
FINANCIAL SECRETARY, W. C. Jones.
TREASURER, H. A. Waller.
EXECUTIVE COMMITTEE: J. B. Carson, C. D. Cussins, M. B. Tallmadge, C. W. Jewell.

The Nominating Committee reported the selection of the following delegates to attend the annual meeting of the National Retail Hardware Dealers' Association: W.

P. Bogardus, Mt. Vernon; J. B. Duffy, Greenville. Alternates: F. A. Powers and G. M. Gray. On motion the report of the Nominating Committee was adopted.

The following committee was reported by the Nominating Committee to form a fire insurance company: G. V. Guyton, Ada; O. M. Scott, Marysville; W. P. Bogardus, Mt. Vernon; G. M. Gray, Coshocton; J. B. Duffy, Greenville; W. M. Cumrine; C. C. Fouts, Middletown; Geo. B. Meyer, Cincinnati; Henry Rahe, Cleveland; Fred. Haberman, Marion. The report of the committee was adopted.

The committee appointed on memorial reported a resolution of condolence to be spread upon the minutes on the death of Hermann Bahlman, president of the Kruse & Bahlman Hardware Company, of Cincinnati, Ohio, and that a copy be forwarded to the family of the deceased. The resolution was adopted by a standing vote.

The Committee on Resolutions reported as follows:

"The decision of the committee was to reaffirm the resolutions of 1898 and pass them without any change." The report of the committee was adopted, and the resolutions passed.

The outgoing president, Mr. Scott, expressed the hope that the members of the association would stand by the incoming officers in the same way they had supported the outgoing officers, and thanked the association for all the kindness shown him.

Messrs. Bogardus, Stahler and Burr then addressed the convention, accepting the offices to which they had been elected, and declaring their intention to fill them to the best of their ability.

After selecting Columbus as the scene of next year's convention the meeting adjourned *sine die*.

THE BANQUET.

The banquet was held on Wednesday evening in the dining room of the Great Southern Hotel. It was given by the association, each delegate sharing in the expense. About 350 persons were in attendance.

At the conclusion of the menu, President O. M. Scott, acting as toastmaster, introduced the speakers for the evening. The first on the programme was Governor George K. Nash of Ohio, who was received with much enthusiasm. His address was followed with attention, and was much appreciated.

Governor Nash was followed by Hon. F. B. Willis, who made an interesting and eloquent address, which was liberally applauded.

B. W. Payne then favored the gathering with a song.

The next speaker was Colonel Kilbourne of the Kilbourne & Jacobs Mfg. Company, Columbus, who made the following address:

Colonel Kilbourne's Address.

When, some time ago, invited to be one of the speakers at this dinner, my first impulse was to decline; not that I did not appreciate the compliment of the invitation, or am not interested in the purpose of your organization, but because at the time I was very tired of making public speeches. I never was fond of it, and the result of my efforts in that direction during the campaign last fall between my friend here, Governor Nash, and myself, was so far from encouraging that my feelings about making a speech could have well been expressed in the words of the little girl in declining for the second time to take a piece of cake.

She was inordinately fond of sweet things, and when she went to her first party, her mother, solicitous about the credit of her child and her family, cautioned her especially about exhibiting her fondness for cake. On the little girl's return home her mother questioned her as to her behavior, and she said: "I did just as you told me, mamma. The first time they asked me if I would have some cake, I said, a small piece, if you please; and the second time they asked me, I said, no, I thank you." "That's right, my daughter," says the mother; "that's just what I told you to say." "But, mamma, they asked me a third time, and you did not tell me what to say then, and so I said what papa says." "And what does papa say?" "Take the blamed thing away."

But thinking of my early connection with the Hardware trade and the cordial reception received at what I

believe was the first meeting of your association I decided to make an exception to the rule I had determined upon, to make no speeches this year, and to take the five minutes to which, with most excellent consideration for your own feelings, the committee had limited me.

Some one has said that the happiest recollections of life are of the days of our childhood, when we hunted for the wild red strawberry and the yellow buttercup. This is but an illustration of the fact that there is a peculiar and most lasting interest in the recollections of our earliest efforts in any of the pursuits of life.

TRIBUTE TO HARDWARE.

I am a son of one of the earliest, if not the earliest Hardware merchant in the State. From my earliest recollection the Hardware store was the source of the family revenue, and an ever present element in my life. I was born in the room directly over it, and from the time I was able to walk was in it almost daily; and, in a sense, grew up in it. It was there I received the first money I ever earned, except that received as a soldier in our army. It furnished the means which sent me to college, and enabled me to marry and begin housekeeping.

I therefore have for a Hardware store a respect and affection which neither time nor interest in other occupations has destroyed; and while I am getting along in years and am called, by such an eminent authority as the Mayor of our city, "an old man," I dream to this day of the old store, selling Locks and Pocket Knives and weighing out Nails and Strap Hinges with as much zeal and earnestness as when a boy.

And I am glad to say that such dreams are happy ones; they are recollections of happy days. Those were days of hard work, but happy work, because while the work was in one sense not always clean, while it was work that would sometimes soil the hands and clothes, it was never work that soiled the soul.

I believed then and, with an experience of over half a century, believe to-day that there is no cleaner, better or happier merchandise business than that of the Hardware store. It is a safe business. While the profits were never inordinately large, and while I understand they have been growing smaller since my day, I believe from my knowledge of the business that any honest, intelligent, industrious Hardwareman, who will give his entire attention to his business and will not be tempted into speculation, either in his business or outside of it, is more certain of success than those in any other occupation whatsoever. A number of satisfactory reasons could be given for this opinion, but I will not consume your time, as I assume you are all Hardwaremen of the kind described and know the facts as well as I do; besides, I do not want to overstep the five-minute limit which the committee has imposed upon me.

There are many things concerning the Hardware trade and men connected with it about which I could speak, but I am going to take the minute or two which remain to me to speak of a class of men who have become necessary to the business, retail as well as wholesale, and for whom I have that "fellow feeling which makes us wondrous kind."

THE COMMERCIAL TRAVELER.

It is difficult for me to say which made the greatest impression on me, my first work as a clerk in a Hardware store (I can remember many of the incidents as well as if they were of yesterday) or my first experience as a drummer selling Hardware on the road. The hardships of the latter were much the greater of the two, and possibly on this account my early impressions as a drummer are the most firmly impressed upon my mind. At any rate, I shall always have for the Hardware commercial traveler a feeling of friendship and comradeship which can only be compared to the feeling which exists between those who have served as comrades together in the army.

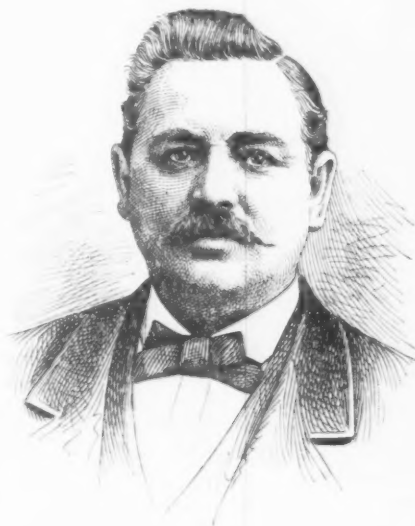
All of us here, merchants or manufacturers, whether engaged in the Hardware business or any other, know the important part sustained by the commercial traveler in the mechanism of that great engine, Trade, on the smooth working of which the prosperity of our country

so largely depends. His work is as necessary for success in our business as the service of scouts is essential to the safety of an army.

Most of the merchants and manufacturers who have been successful have been students in this school—drummers in their line of business—and owe their success as much, if not more than to anything else, to the knowledge of men and methods acquired by faithful work "on the road."

Instruction and experience in that school is as important for them as instruction in professional schools is for those who would be lawyers, doctors or preachers, and that man is a marked exception to the rule who has achieved a notable success as a merchant or manufacturer who has not had the training of a commercial traveler.

But commercial traveling is no longer merely a schooling for higher commercial life. Its work has so developed and has become of such importance that men of the highest ability, men whose qualities of mind



M. B. TALLMADGE, Member Executive Committee.

would make them conspicuous in any calling, choose it as their life work. In its highest walks, art and skill and brains and courage and tact are as necessary to success as in the professions, and are as well paid, or should be. I was four years in the army; I have spent more years than I care to tell with the labors and cares of a manufacturer; I think I have fairly won the little fame or fortune acquired in either, but I am entirely sure that I never so fully earned my pay for any services as when a drummer on the road.

Of the hardships of the life, its trials and tribulations, its fatigues, its disappointments, I would not speak at length on such an occasion as this. They are, perhaps, no greater and no less than are found in many other occupations. Probably, however, to the younger men who constitute so large a part of the army of commercial travelers they appear greater. It is with them as it was with the married man, whom a young bachelor, contemplating matrimony, asked if he thought it were true, as some people said, that married men lived longer than unmarried ones. He replied, "I don't know about that, but it seems longer."

What some of these trials are I know very well through my own personal experiences. One of them which made a lasting impression on me is the unnecessary delay to which travelers are at times called upon to submit, waiting and watching the moments slip by while anxious to close their business in time to catch their train, which, failing to do, may mean a day lost, while the customer, the merchant, who has made an appointment with you, or has sent word that he will see you presently, calmly continues his political argument or chat with personal friends. The recollection of such experiences, while a traveler, has led me, as a manufacturer, to make it a rule to assume to have—no matter how occupied—a previous and imperative engage-

ment with every commercial traveler who calls upon me on business, whether he calls by appointment or otherwise, or whether I know him or have never heard of him or his house before.

VALUE OF ORGANIZATION.

But I have already taken up too much of your time and will close with a few words only on the value of an organization like yours. I understand it is not formed for the purpose of controlling prices or limiting production, which would be contrary both to the law of the State and good morals, but primarily to bring about improved methods and greater efficiency and the abolishment of practices injurious to all. Associations of this character are helpful in many ways besides those which I have indicated. The mingling together as friendly associates on occasions like this of men who are rivals and competitors in business, the forming of personal attachments through such associations, tends to soften the asperities of business life, to call attention to those ways in which we can assist each other to our mutual benefit, and to remind us that while in one sense we have our separate purposes in life and are going in different directions, yet in another sense we are all in the same boat and sailing for the same shore.

And here, owing to the fact that things frequently suggest their opposites, I am reminded of the story of the two Irish friends. They had been friends in the "Ould Country." They wanted to come to America, but all the money they had between them would only pay the passage of one. They drew lots for which one should go, with the understanding that the lucky one should, when he could, send back for the one left behind. The one who was successful in the drawing came to Chicago, got work at once, saved some money, invested in land at a lucky time, and made his pile. He immediately sent over to his friend in Ireland the money to pay his transportation to Chicago. The latter did not wait to notify his friend of his coming, but started at once. He had always lived in the country, and on his arrival in New York was greatly impressed with the many things he saw which were entirely new to him. He took the emigrant train to Chicago, and at a little town in the northern part of this State, where the trains going west from New York and the trains going east from Chicago pass each other, a culvert had been washed out by the rain, and the two trains were delayed while it could be repaired. Our immigrant got out of his car and, walking up the platform, whom should he meet but his old friend, who was going to New York in the best style. They rushed into each other's arms, and the newcomer immediately began to tell of the wonderful inventions he had seen in this country. His friend asked him if he had ever seen a Pullman vestibule train. He said he had not, and his friend said, "Come with me." He took him into the dining car, punched the button, and when the waiter came, ordered some whisky. They drank first to old Ireland, and then to various other patriotic toasts, as Irishmen will when meeting after long separation, and after awhile, through the fatigues of the journey and the many drinks, they both fell asleep. When the culvert was repaired, the two trains started on their way, one going to Chicago and the other to New York. The jar of the train in starting awakened our two friends, and the immigrant, looking out of the car window, and seeing that the car was in motion, and looking down and seeing his friend sitting beside him, and having been convinced that nothing was impossible to America, said: "I was telling you about the wonderful inventions I saw in New York, but this beats them all. Here we are, you and I, sitting side by side in the same car; you going east and I going west."

And so, my friends, here you are to-night, competitors in business, in one sense going in different directions, and yet in another, as mutual interests bind you, all sitting in the same car. Here we are, men of different political and different religious views, yet all true Americans, all equally desiring the welfare of our common country, all equally united in seeking the welfare of our fellow men.

After a song by Geo. M. Schad, which was well received, the toastmaster introduced Henry C. Wiseman

of Springfield, who spoke as follows, in response to the remarks of Colonel Kilbourne:

H. C. Wiseman's Address.

It is not given to many Hardware associations to be so favored as is this one to-night—in the friends who have gathered with us, and to whom we do honor. Men deep in matters of State and high in political preferment are not always at hand with time to spare and the gracious inclination to give of that time to the greeting of representative Hardwaremen assembled from all points of the compass, at what we are pleased to call our annual dinner. It is peculiarly fitting that we have with us to-night a gentleman who in his time and in that which we represent was as well known perhaps as any other in the State, and who, in a manner now a deserter of the ranks direct, is still engaged in contributing to all of us the manufactured products with which we are familiar, and which leaves him still one of us. There is peculiar pleasure, too, in responding to his greeting, when with it all there comes the added gratification that perhaps he has not altogether lost sight of one he knew in boyhood days almost as well as in the after years of his life. To know Col. James Kilbourne in those days was an inspiration to any young man—a Hardwareman so thorough, so full of business, so well posted that few men in the State were counted his equal. He has ever been that inspiration for younger men for all with whom he is associated and will continue to be to the end.

I remember well some 25 years ago when the entire Hocking Valley was a great bee hive of industry—possibly most of these gathered with us can recall those splendid days, and I am sure all of us whose homes were within a radius of a hundred miles or less of this city. Those were the days of carload orders—carloads of Shovels and Picks and Handles—carloads of Barrows, of Nails and of Glass—of everything that made prosperity in that wonderful section. This magnificent trade was controlled at that time almost entirely by Columbus houses—of which the house of our friend and his associates was head and front. When large orders were in sight—and they were more than enviously kept track of—it was the policy of Colonel Kilbourne—trusting only to his own good pencil and order book—to take the first train out and secure them. Very little ground was left for those who followed to tramp over, and so it is that he who has addressed us has not only been through long years of the Hardware trade, but knows well, too, the woes of the traveling salesman. In those days the splendid firm of MacCracken & Winter—or as the sign then read, W. B. MacCracken—of the beautiful little city of Lancaster, was sponsor for what the speaker may not know of Hardware, and half the pleasure in life was in seeing and knowing such men as our friend, and watching as best we could the clever, busy methods that sent them on their way with the joy that comes to all men of success.

THE IMPRESSIONS OF BOYHOOD DAYS AND YOUNGER MANHOOD

follow all through life—no matter what the circumstances of the after years. How few of us realize the stamp we are leaving with a footstep here and another there, and whether it be for good or naught, and how few of us there are who have not carried with us in the long years of the everyday struggle bright memories of some one or two or three good men, in whose footsteps we should have liked to have followed. The pity is that more of the younger men—employees learning the business—in the time allowed in these busier days, cannot come in closer contact with men who leave impressions, and whose influences for good, for there are many such men, and the necessity of traffic as we see it now is adding to their number, rather than taking from.

Colonel Kilbourne, as long as I have known him, has always been a lover of men, a controller and commander of men—and these have largely grown up with him—loving and respecting him as well. Leaving a splendid retail Hardware business quite a number of years since to take active charge of a manufacturing business in which we held previous interest, the Hardware trade family lost him for good and for all, and

the manufacturer gained an ally, an associate whose business, whose name and whose territory is world wide. Wherever on this broad earth a shovel lifts, a wheel turns, or a load of dirt is in the dumps, the name of the Kilbourne & Jacobs Company is known and heralded, a synonym for all that is broad, strong, progressive and almost everlasting. I am told that in all the years of their existence, such is the universal good feeling prevailing, that nothing approaching a strike or labor trouble of any kind whatsoever among the hundreds of men employed has ever been suggested. In this, as in all else, it is the man at the head, an ideal business man. Honors have come, as they do to such men—political honors, positions of trust, social honors, the honor and friendship that comes from an entire city's community. It is true, and I know he will not censure me for making the statement, that but a few years since there were some 16 or 17 chairs that bid him sit down in welcome as director, chairman, treasurer, or what not, and why 48 hours, instead of 24, were not put in his calendar at that time I cannot see. He will pardon, certainly, when I say it for the example that some of us younger men may follow, for the possibilities that open up to the Hardware merchant of to-day. Hardwaremen, to a man, are bright, clever, intelligent, well read and ambitious. It takes a good man to belong to the craft—and there are 1400 Hardware establishments in this State. Who can say what may be in store for many of us? Many there are who have already risen in and beyond the ranks, and there are more who will always be there and content to be, looked up to and honored under any conditions.

OHIO HAS GIVEN OTHER OF OUR MERCHANTS

to places of preferment—men whom we do well to follow, too, in so far as we can. What one of us has forgotten that splendid citizen, that kindly gentleman, in the person of ex-Lieutenant-Governor W. V. Marquis of Bellefontaine? Every young man's friend, every older man's companion, full of good words and works, always with a helping hand, ever with a good warm spot in his heart for those in trouble, and ever in the memory of those who knew him best, the members of the Ohio Hardware Association. Of those in the ranks we recall that man, who is a wonder to all of us, William Bingham of Cleveland, who, at an age approaching 85 years, has, before the morning is through with, gone well over the floors of the monster establishment of which he was the founder, and for over 50 years the head; and that dean of all the Hardware trade of the city of Columbus, J. S. Abbott, who, if memory serves me rightly, is the senior of Mr. Bingham by several years. Such men as these keep young in the labor of love they make of their business. We call to mind the presence in our midst two years ago of J. H. Kauke of Van Wert—a man beyond his four score years and still in active business—whose talk at the time was full of lessons for the younger men of their association. And so it is and has been all over our beautiful State.

OHIO IS GREAT IN HARDWARE.

as she is in statesmanship. She has given us everything to be proud of, and if in her statesmen, her jurists, her otherwise eminent men she has given us our Ewings, our Shermans and Sheridans, our Corwin and Thurman and Ranney, Chase, Stanton and Grant; our Hayes, Garfield, Harrison and McKinley—so, too, has she given us some of the greatest business men in the world, men of great mercantile interests, great in mammoth dry goods establishments, great in splendid Hardware interests, great in finance and in electrical development, in railroading and engineering—and wherever we go in the large cities of the world there is to be found an Ohio colony. As an instance, the Ohio Society of St. Louis is one of the strongest and most influential among the State organizations in the West, numbering among its members men who have developed national reputations as politicians, lawyers, merchants and manufacturers. At the banquet given in that city it was said "the invasion of a State by the Buckeye brigade means progress with a big P." They bring with them the hustling ability, push and vim which have made

their native State one of the greatest Commonwealths in the Union. The credit for the great change in the State of Missouri in recent years rests largely with Ohioans, who are quick to see and seize opportunities. The society of itself is purely for the fostering and keeping up of State pride, which might be and sometimes is called the cardinal sin of the average Buckeye. Wherever we turn and whatever the direction, Ohio is the pivot, and Ohio's Governor, our Governor Nash, is the central pivotal man of interest. In giving us him she does honor to all of us, whether we be here or scattered in the Ohio colonies or societies of the world. If, in closing, I offer you my theme at the last, rather than at the beginning, it is only because its subject matter was before us and with us, and that the best might be at the last—where the good wine cometh—I offer you—the ideal business man.

W. P. Lewis, president of the National Retail Hardware Dealers' Association, was then presented. Mr. Lewis said:

Address of W. P. Lewis.

It is a surplusage for me to say that I appreciate the privilege of being your guest this evening. I come here representing the National Retail Hardware Dealers' Association. I came here for the purpose of bearing an invitation to this body to join the National Retail Hardware Dealers' Association, and I discover upon my arrival that you have accepted the invitation before I had the pleasure of presenting it. How pleased I am that this is the fact I shall state to-morrow in executive session.

COMMERCIAL EVOLUTION.

We live to-day in a period of startling commercial evolution. The manufacturers are banded together for the purpose of controlling the output and regulating the prices of our principal commodities. The jobbers are banded together for the purpose of securing concessions from these manufacturers, so that they shall be placed in a position to do a profitable jobbing business, and at last the retailers have awakened and organized for the purpose of informing the commercial world that they, too, are an element to be reckoned with in the distribution of the world's commerce.

UNASSAILABLE PRINCIPLES.

The principles which underlie the organization of the National Association are unassailable, and in theory they are recognized and adopted by both manufacturer and jobber, but unfortunately in practice they are frequently outrageously violated, and we sometimes occupy the position of a woman who was the wife of a rural politician. Upon one occasion she said to him: "John, I wish you would forego the responsibilities of state for a day or two and go and grub the potatoes in our garden." He said, "Certainly, Mary, I will do it." He went and grubbed, and in a few minutes he returned and exhibited a coin all covered with earth. She washed it off, and it proved to be a quarter. He went back and rubbed a little while longer, and he came in with another coin. After it had been washed it developed to be a half a dollar. "Now," he said, "Mary, I am tired, suppose you go and grub, and I will take a little nap before I do any more work." And he laid down to sleep. When he awoke all the potatoes had been grubbed, but Mary had found no more coins.

In the city of Brooklyn not long since one of our foremost political orators said in a speech before a reorganization meeting, commenting upon a speech of Mr. Cockran, that he was always brilliant, sometimes logical, but that he never permitted facts to interfere with his periods.

I came here this evening with no periods, but I have three facts which I desire to emphasize to this body. The first is that the aggregate capital employed by the retail Hardware dealers throughout this land exceeds by far the aggregate capital of the jobbers in the Hardware business. I have to say that the influence of the National Retail Hardware Jobbers' Association is established beyond all question. I have to say also that there is absolutely no reason in my judgment why this body should not belong to the National Retail Hardware As-

sociation. I am pleased to know that you are now members of the association.

UNDER THE HAY.

In the northern part of the State of Indiana there was a load of hay being hauled up a hill, and when they got midway of the incline the rope which held the load of hay dropped and the load slid off the wagon, and the boy who was driving commenced figuring to put the hay back. The farmer in front of whose house the accident happened came out, and said: "Come in and get some dinner, and you can put on the hay just as well after you have had dinner, and it is a very hot day." The boy said, "No, pa will not like it; I will put it on now." The farmer says, "Come on and have some dinner, and after dinner you can put on the hay," and perforce he took the boy in to dinner. He ate his dinner, and after the dinner was over he started to readjust the hay. The farmer says, "Why don't you sit down on the porch and rest a bit? You have eaten a hearty dinner; it is a warm day, I think you will have plenty of time to get home." The boy says, "No, no; pa will not like it; I better go and put the hay on." "Well," says the farmer, "where is your pa that you are talking so much about?" "Why, why, he is under the hay."

The retail Hardware dealers have been under the hay, but we are coming out from under the hay and the seed is off of our coats, and by the influence of the National Retail Hardware Dealers' Association the time is speedily coming when that condition which means fair and proportionate profit alike to the manufacturer and jobber and the retailer is soon coming to pass, and then our victories will be those of fairness, diplomacy and peace.

Meeting of Insurance Committee.

A meeting of the Insurance Committee, composed of the following gentlemen, met at the Great Southern Hotel immediately after the adjournment of the convention: G. V. Guyton, Ada; O. M. Scott, Marysville; W. P. Bogardus, Mt. Vernon; C. C. Fouts, Middleton; J. P. Duffy, Greenville; Geo. B. Meyer, Cincinnati; Henry Rahe, Cleveland; Fred. Haberman, Marion; W. M. Curmin, Salem, and Geo. M. Gray, Coshocton. The following officers were elected *pro tem.*: G. V. Guyton, president, and Geo. M. Gray, secretary. The secretary was instructed to send return postal cards to every retail Hardwareman in the State of Ohio, asking him to kindly state on the return card how much insurance he would be willing to take in case the company are organized on a proper basis. The amount stated on the return card will not in any way hold the writer responsible unless the company are organized on a solid foundation and on one that will be profitable to all. The committee desire this information that they may be able to determine how much money can be raised prior to their efforts to establish an insurance company for the retail Hardwaremen of Ohio.

If any retail Hardwareman in the State does not receive a card it will be because of an oversight, and he is asked to kindly notify the secretary, Geo. M. Gray, Coshocton, Ohio, and state how much insurance he would be willing to take. We trust that the retail Hardwaremen of Ohio will respond promptly to this request, as it is very important to the work of the committee.

CONVENTION NOTES.

Previous to the holding of the convention cards of invitation were sent out to the retail Hardwaremen throughout the State, asking them to be present. These invitations resulted in quite an addition to the membership of the association.

The entertainment given on Tuesday night by the Board of Trade, at the Board of Trade Auditorium, was a unique and enjoyable affair. The work of the European Ladies' Chorus, including some 20 voices, was highly appreciated. A smoker was given at the close of the entertainment in another part of the city, also under the direction of the Board of Trade.

Several ladies accompanied their husbands to Columbus. The Columbus Varnish Company invited the ladies to take a trolley ride about the city, which was thor-

oughly enjoyed. They also accepted an invitation for a theatre party on Tuesday evening.

An invitation was also received by the convention from the Hallwood Register Company, Columbus, manufacturers of Cash Registers, to visit their factory.

EXHIBITS.

A number of manufacturers had exhibitions of goods in charge of representatives at the Great Southern Hotel, the headquarters of the association, among which were the following:

S. R. Slaymaker, Lancaster, Pa., showed a full line of Padlocks and Night Latches.

Rollman Mfg. Company, Mount Joy, Pa., demonstrated the practical operation of their Food Choppers, Apple Cutters and Cherry Seeders.

The Arras Cream Separator Company, Bluffton, Ohio, had their Cream Separator on exhibition and explained its operation.

The Caldwell Mfg. Company, Rochester, N. Y., distributed samples of their Dime Screw Door Check.

O. P. Schriver & Co., Cincinnati, distributed copies of a Wire Cloth and Netting price book.

Hardware Association Map.

The map presented herewith gives a good idea of the extent to which the Hardware association principle has been planted in the great State of Ohio. This association, the oldest of the State retail Hardware associations, is now nearly 400 strong, including in its membership many of the largest and most progressive retail merchants in the State. Following is a complete list of the membership to date:

List of Members.

Allen & Miller, Forest.
Acker & Cole, Fayette City.
Augsburger, A., Kenton.
Armitage, Robert, Athica.
Armstrong, P. M., & Co., Lisbon.
Artress, T. H., Lorain.
Abbott, J. S., & Co., Columbus.
Arthur, Geo. T., Conneaut.
Alton, N. C., Lorain.
Adams, S. T., Wills Creek.
Adams, W. H., East Liverpool.
Angle, W. H., Piqua.
Adams Hardware Company, Wilmington.
Armstrong & McCracken, Bellefontaine.
Baird & Webster, Selo.
Bell, Jas. A., Roscoe.
Belmer, H. & Co., Cincinnati.
Bredbeck, H., Pt. Clinton.
Blair, E., Bucyrus.
Bode Hardware Co., Cincinnati.
Bowers, F. W., Sharon Center.
Buntley & Wagner, Bryan.
Burgott & Bannister, Gallon.
Banting-Sanders Co., Elmore.
Bostwick-Braun Co., Toledo.
Blaser & Kuenzli Bros., Nevada.
Boesel, Chas. J.
Blattner, G. H., Vermillion.
Brown, Thos., Savannah.
Burr, D. R. & Co., Piqua.
Buchanan Bros., Ripley.
Brash, A., Sciotoville.
Bashore, F. M., Paulding.
Baddley (Hon.), New York City.
Boyer, L. D., Swanton.
Brobst, Askam & Eckhart, Findlay.
Bunn, E. J., Bellevue.
Blackman, G. W., Sons, Painesville.
Bryan Hardware Co., Bryan.
Barberton Hardware Co., Barberton.
Bretch, Adam, Dayton.
Blizzard, E. W., & Co., Wauson.
Bodell, T. W., Harrod.
Boone, The W. K. Co., Lima.
Bogardus & Co., Mt. Vernon.
Bigley, C. P., Rising Sun.
Bird, Wm., Mt. Vernon.
Bale, W. C., Westerville.
Brown-Potter Hardware Co., Washington C. H.
Blackwood, Green & Co., Columbus.
Baker, J. F., Dayton.
Brooks & Krantz, Canal Dover.
Boebinger Hardware Co., Cincinnati.
Rlicking, H., Cleveland.
Briggs, R. W., Frankfort.
Crobough & Dahm Hardware Co., Tiffin.
Cossay & Ash, Carey.
Church Bros. & Weld, Marion.
Conk, O. B., Dayton.
Calkins, W. R., & Bro., Columbus.
Coles, Schable & Smith, Troy.
Cloppert & Splitter, Brookville.
Carr, A. M., & Son, Salem.
Carson, J. B., Hamilton.
Carlisle & Grimes, Cambridge.
Coshocton Hardware Co., Coshocton.
Cantwell, Kingsley & Elder, Kenton.
Coe, Ben, Coshocton.
Cussins & Fearn, Columbus.
Conwell, J. C., Xenia.
Crouse, C. M., Cedarville.
Canton Hardware Co., Canton.
Crawford, C. M., Air Line Junction.
Clapp, C. D., Toledo.
Cass Hardware Co., Hamilton.
Cookson, J. W., Kansas.
Clark, B. M., Gettysburg.
Central Hardware Co., Portsmouth.
Crosby Hardware Co., The Ashitabula.
Castell, T. A., Murray.
Cleveland Window Glass Co., (Hon.), Cleveland.
Cranberry, H. A. (Hon.), Cincinnati.
Cumenings, C. J., Prospect.
Columbus Supply Co., Columbus.
Cummins, S. C., Belair.
Colwell Hardware Co., Mansfield.
Classman Hardware Co., Zanesville.
Curtis, Edward F., Quincy.
DeMuth & Bowyer, Cardington.
Dunbar, E. L., Herring.
Donahue, J. T., & Co., Sandusky.
Dickinson & Wallace, Mt. Victory.
Duffy, J. P., Greenville.
Davidson, H. P., Cleveland.
Doolittle Bros., Painesville.
Duncan & Koeper, St. Mary's.
Doering, J. H., Wapakoneta.
Delphos Hardware Co., Delphos.
Drummer, Jos., Custar.
Dunbar, J. R., Hilliards.
Davidson, W. W., Jr., Harrison.
Devon, U. N., Cincinnati.
Dimm, B. T., (Hon.), Columbus.
Daniel, W. W. (Hon.), Cleveland.
Elvria Hardware Co., Elvria.
Eastern, F. B., Bellefontaine.
Evans & Howland, Plain City.
Ewing, J. J., Lima.
Erwin Bros., Jackson.
Elliott & Wilson, Newark.
Eakleman & Bechtel, Orrville.
Eversman, E. A., Toledo.
Edon Hardware Co., Edon.
Evans, J. S., Mason.
Einen, M., Paulding.
Frazier, C. S., Dresden.
Fusselman, P. A., Edgerton.
Franklin, J. R., N. Amherst.

Farr & Simcox, Wadsworth.
 Flank, Jacob, Mt. Healthy.
 Fellers & Wuenker, Cincinnati.
 Fouts, C. C., Middletown.
 Frye & Rex, Crestline.
 Faber & Bowman, Magnolia.
 Fedderyham, W. H., New Knoxville.
 Fibley, H. P., New Philadelphia.
 Fishback, H. L., & Co., Columbus.
 Fisher Hardware Co., Wapakoneta.
 Flory & Hall, Arcanum.
 Fett, John, Bluffton.
 Fuhr, J. C., Williamsburg.
 Frizzell & Johnson, Fredericktown.
 Gassman Bros., Findlay.
 Gayton, G. V., Ada.
 Gilbert Bros., Ravenna.
 Gillivans, James', Sons, West Jefferson.
 Getz Bros., Kent.
 Grant, Alex., Antwerp.
 Griffith, M. A., Madisonville.
 Gray Hardware Co., Coshocton.
 Grimm, R. H., Hudson.
 Gross, John, Akron.
 Grim, E. R., Morrow.
 Gano, Howell & Co., Cincinnati.
 Glozier, L. H., Athens.
 Goldsberry & Co., Athens.
 Glockner, A. M., Portsmouth.
 Gustin, J. W., Blanchester.
 Gillett, H. (Hon.), Columbus.
 Gordan Bros. & Co., Antwerp.
 Granbery & Co., H. A. (Hon.), Cincinnati.
 Gloucester Hardware Co., Gloucester.
 Horn, D. H., Lewisburg.
 Horn, D. E., Lewisburg.
 Holcker, R. & H., Crestline.
 Harding & Co., Wooster.
 Huggett & Hill, Columbus.
 Hibbard Hardware Co., Athens.
 Hart, R. R., Greenville.
 Hausbarger, F., Dayton.
 Heldmeyer Hardware Co., Elyria.
 Hoemmelmeyer, F., Cincinnati.
 Hoggendobler, A. D., Osborne.
 Hagan & Schadd, Marietta.
 Hartke, Geo., Cincinnati.
 Harter & Cosley, Troy.
 Henne, John, Youngstown.
 Hatfield, H. S. & Bro., Troy.
 Heller, C. C., Beaver Dam.
 Hull, Henry, Huron.
 Hart, C. W., Nova.
 Harger, H. A., Canal Dover.
 Herberster, B. K., & Son, Prospect.
 Held, Philip, Hamilton.
 Haberman, Fred., Marion.
 Holt, J. H., Mt. Gilead.
 Harringshaw, G. H., & Co., Cleveland.
 Hart, Clarence, Spencerville.
 Hunter & Osborne, Mechanicsburg.
 Hobart, Bolus & Co., Pemberville.
 Huber, Geo. W., Germantown.
 Harris, F. J., Fredericktown.
 Hamilton Supply Co., Hamilton.
 Huston Bros., So. Charleston.
 Hillsboro Implement Co., Hillsboro.
 Howard, John A. (Hon.), Dowagiac, Mich.
 Inderrider, J. D., & Co., Lorain.
Iron Age, The (Hon.), New York City.
 Johnson, Charles C., Barber-ton.
 Jones, T. R., & Son, Lima.
 Jones-Williams Hardware Co., Columbus.
 Jones & Tudor, Van Wert.
 Jones, D. L., & Co., Newark.
 Jeager & Bryant, Genoa.
 Jeager Hardware Co., Sherwood.
 Johnson & Jennings Co., Cleveland.
 Jewell, C. W., Utica.
 Jackson, W. E. (Hon.), Columbus.
 Kinneer, F. C., New Waterford.
 Kruse Bahlman Hardware Co., Cincinnati.
 Kimmel, C. L., Dayton.
 Kauke, J. H., Wooster.
 Kuhlman Hardware Co., Woodville.
 Kell, Wm., Woodville.
 Kell, Wm., & Son, Pemberville.
 Kennedy & Rockefeller, Willoughby.
 Kauke, J. H., Van Wert.
 Kobmann, Chas., Cincinnati.
 Kilbourne-Jones Co., Columbus.
 Kramer & Haverbeck, Minister.
 Knapp, B. H., Cincinnati.
 Kraft, G. H., & Son, Ashland.
 Kohstald, David, Elmwood Place.

Kreusch, Mrs. Jacob, Celina.
 Keller, L., & Co., Cincinnati.
 Kall, F. B., Delaware.
 Kirker, C. E., Manchester.
 Kramer-Vait Co., Dayton.
 Kehnast, Wm. A., Defiance.
 Koontz, W. T., Woodsfield.
 Loomis, G. W., & Co., Bowling Green.
 LeFevre & Boden, Greenfield.
 Lorain & Krantz Hardware Co., Lorain.
 Laughlin & Hawk, Carey.
 Linderman, A. E., Cincinnati.
 Lockwood-Taylor Hardware Co., Cleveland.
 Lang Bros., Manchester.
 Lawrence & Brightman, Berea.
 Lugibihl, A. D., Bluffton.
 Long, Heywood, Martin's Ferry.
 Lingo, J. W., Lebanon.
 Lyon Hardware Co., Springfield.
 Loomis, L. W., Hardware Co., Cuyahoga Falls.
 Lauferweiler, John, Minister.
 Luetkemeyer, H. W., & Sons, Cleveland.
 Long, Marion (Hon.), Newark.
 Mitchell Bros. Co., Cleveland.
 Miller Bros., Creston.
 Mylander, H. C., Oak Harbor.
 Morris Hardware Co., McCon-nellsville.
 Manott, T., Lake View.
 Manchester Hardware Co., Canfield.
 Miller, R. H., Bellevue.
 Mallet, E. W., Windham.
 May & Fieberger, Akron.
 Mayer & Guthke, Columbus.
 Meyer, Geo. B., Cincinnati.
 Matthias Stove Co., Hamilton.
 Mangras, A. J., Defiance.
 Martin & Wineland, McCombs.
 Morgan-Bummell Co., Akron.
 Moor, E. E., Ashland.
 Mead, R. D., Anna.
 Markley, A. G., Georgetown.
 Milligan Hardware & Supply Co., East Liverpool.
 Mowrystown Hardware Co., Mowrystown.
 Mosher, H. L. (Hon.), Dowagiac, Mich.
 McCracken-Winters Hardware Co., Lancaster.
 McCready, M. W., & Co., Ashland.
 McCune-Crane Hardware Co., Newark.
 McIntosh-Huntington Co., Cleveland.
 McCord, J. E., Camden.
 McConnell, C. L. (Hon.), Chicago, Ill.
 Nemmons & Nemmons, Plymouth.
 Nelsonville Hardware Co., Nelsonville.
 Nichols & Harner, Bellefontaine.
 Nichols, G. P., Bedford.
 Nye Hardware Co., Marietta.
 Nichlos & Milligan, Bellefontaine.
 Osborne & Churchill, Bellefontaine.
 Oster, M. A., Yellow Springs.
 Oxford Hardware Co., Oxford.
 Perry, E. S., Fayette.
 Perry & Drake Hardware Co., Zanesville.
 Pipes, A. L., Fulton.
 Picking, D., & Co., Bucyrus.
 Potts, S. B., Columbus.
 Pierson & Reid Hardware Co., Greenville.
 Park Bros., Tiffin.
 Pouchot, Hunsicker & Co., Akron.
 Plummer, John, Bellefontaine.
 Potter, F. M., Cleveland.
 Pickering Hardware Co., Cincinnati.
 Powers, F. A., & Co., Norwalk.
 Pioneer Hardware Co., Plover.
 Payne-McDonald Hardware Co., Columbus.
 Peske & Praker, Versailles.
 Preston, A., Walnut Hills, Cincinnati.
 Putman & Parrett, Greenfield.
 Pergrin, J. B., Columbus.
 Poulson, H. C., Deersville.
 Paullin, E. A., Jamestown.
 Pierson, T. C., Frazersburg.
 Penny & Penny, Lima.
 Pemberly, F. J. (Hon.), Detroit, Mich.
 Peterson, C. W. (Hon.), Piqua.
 Rothwell, A., Hamilton.
 Ruhlman & Miller, Cardington.
 Ricketts, B. Worth, Coshocton.
 Roney & Shearer, Dayton.
 Remy & Bare Bros., Mansfield.
 Rose & Avery, Bowling Green.
 Resch Bros. & Casey, Gallon.
 Rohrbacker & Allen, Akron.
 Rosellin & Ehler, West Alexandria.
 Rader & Co., Sulphur Springs.
 Romer, W. H., St. Henry.
 Rabe, W., New Bremen.
 Roberts, D. R., Racine.

Royer, Wilson & Sons, Eaton.
 Robinson, H. P. (Hon.), Toledo.
 Rider, L. P. (Hon.), Columbus.
 Robinson, J. H. (Hon.), Dayton.
 Reeves, J. B. (Hon.), Columbus.
 Stone Bros., Urbana.
 Stouffer, H. D., No. Baltimore.
 Smith, C. E., & Co., Malta.
 Stambaugh-Thompson Co., Youngstown.
 Schoedinger, Fearn & Co., Columbus.
 Star & Arner, Clyde.
 Spittler & Cloppert, Arcanum.
 Smith, J. E., Caldwell.
 Scott, O. M., & Bro., Marysville.
 Spoerle, John S., Hamilton.
 Stollberg-Clapp Co., Toledo.
 Snyder, P. E., & Co., Blanchester.
 Snyder & Shuter, Evansport.
 Strome Bros., Warsaw.
 Schwertner, Julius, Cleveland.
 Salem Hardware Co., Salem.
 Stahler, F. M., Waverly.
 Schwertner, B., Cleveland.
 Springfield Hardware Co., Springfield.
 Smith Bros. Hardware Co., Columbus.
 Schroeter & Meinerding, Ft. Recovery.
 Standard Hardware Co., Akron.
 Skinner & Richards, Collingwood.
 Smith, E. C., Garrettsville.
 Spetnagle Hardware Co., Chillicothe.
 Seymore, John, Cincinnati.
 Star Hardware Co., Toledo.
 Speasmaker Sons, London.
 Sommer Bros., Portsmouth.
 Seeley & Berry, Columbus.
 Shaw, Stechone, Cincinnati.
 Snyder Bros., Mt. Oreb.
 Slack, W. J., Wilmington.
 Snyder & Belcher, Ironton.
 Steigmeyer, F. H., Attica.
 Sparks, J. W., Wilmington.
 Schuster, J. W., Sabina.
 Schriver, O. P., Cincinnati.
 Shisler & Zimmerman, Grove Hill.
 Smith, Wm. Co. (Hon.), Detroit.
 Smith, J. Wiley (Hon.), Cleveland.
 Smith, J. W. (Hon.), Cleveland.
 Smith, C. W., Waverly.
 Thornton, F. C., Cleveland.
 Tvetthang, E., Cincinnati.
 Taylor, Morris, East Rochester.

Tallmadge Bros., Mt. Gilead.
 Topke Bros., Ashtabula.
 Timmerman Stove & Range Co., Cleveland.
 Tebbe, J. H., & Sons, Gibson-berg.
 Taylor Hardware Co., Jackson Center.
 Tuttle & Ostott, Springfield.
 Taylor, O. P., Sidney.
 Term, E. N. (Hon.), Cleveland.
 Ullery, Isaac, New Carlisle.
 Union Hardware & Supply Co., Ashland.
 Upham, C. A. (Hon.), Columbus.
 Vogel & Bredbeck, Oak Harbor.
 Vernier & McLaughlin, Archbold.
 Von Behren, H. W., Cincinnati.
 Wiley, G. W., New Madison.
 Wland, C., Port Washington.
 Whitbeck & Jefferson, Norwalk.
 Wood, Jas. & Bro., Springfield.
 Wooster Hardware Co., Wooster.
 Wolf Hardware Co., Toledo.
 Wilcox, M. I., & Co., Toledo.
 Wolf & Anderson, Hollandsburg.
 White, W. F., Shelby.
 Williams, G. C., & Son, Ottawa.
 Wannamacher, Chas., & Son, Ottoville.
 Woodward, H. G., Sidney.
 Wesbecker, J., & Co., No. Amherst.
 Wright, J. F., Worthington.
 Wheaton & Cockerell, Sunbury.
 Waller Bros., Ravenna.
 Wyant & Hilsinger, Republic.
 Winters Bros., Fremont.
 Whitehorn Bros., Archbold.
 Wenger, E. T., Eldorado.
 Witte & Co., Haskins.
 Worthington, Geo., & Co., Cleveland.
 Walthner, F. A., & Co., Bucyrus.
 Wagner, C. C., Mansfield.
 Wilder, J., & Co., Cincinnati.
 Welch & Dakin, Harveysburg.
 Ward & Clark, Ravenna.
 Walsh, J. V., & Co., Akron.
 Wright & Reid, College Corner.
 Weideman, F. W., Wapakoneta.
 Watson & Thompson, Oberlin.
 Wissler & Purdum, Chillicothe.
 Walbaum Bros., Brookville.
 Winters, J. G. (Hon.), Delaware.
 Warren, J. D. (Hon.), Chicago.
 Zanesville Hardware Co., Zanesville.

STANDARD HORSESHOE COMPANY, 8 Oliver street, Boston, Mass., with mills at South Wareham, Mass., announce that they are now in the market with a superior line of Horseshoes made from the best double rolled iron. They state that care is taken in the selection of materials and in the workmanship; that the patterns are up to date and the finish excellent. The Shoes are made heavy, medium, light and extra light, and the company warrant every Shoe. The mills have a capacity of 100,000 kegs per annum, and prompt shipments are assured. The plant is now running at its full capacity, and the company are offering advantageous terms to large and small buyers.

THE NEW DEPARTURE BELL COMPANY, Bristol, Conn., for whom John H. Graham & Co., 113 Chambers street, New York, are selling agents, are prepared to furnish for the use of Bicycle dealers and repair men a varied assortment of illustrated trade literature for the perusal of customers, which advertises their lines of Bicycle Bells, Coaster and Brake, Cyclometers, Acetylene Gas Lamps and similar devices.

MUNRO BROS.' WIRE WORKS, New Glasgow, Nova Scotia, are doubling the capacity of the plant. They have purchased a valuable property opposite their present plant, upon which they will build, this spring, a large warehouse. They have two railway sidings and wharfage, so that their shipping facilities are excellent. They are jobbers of Wire in all its branches, and are adding Hardware Specialties. This year they put on two new traveling men to reach points not hitherto covered in the Maritime Provinces. They would be pleased to hear from any firm who would like to be represented in this territory.

New England Iron and Hardware Association.

THE New England Iron and Hardware Association held their ninth annual dinner at Hotel Vendome, Commonwealth avenue, Boston, on the 25th ult. The arrangements for the banquet were in charge of the following committee; John T. Boyd, chairman; Oscar A. Shepard, H. W. Waite, and were perfect in every detail. The tables were arranged in the form of a letter "E," with a single round table in the rear, around which were seated 18 congenial spirits. The hall and tables were tastefully decorated with bunting and flowers, and an excellent orchestra furnished music.

The guests of the association were: Hon. James J. Myers, speaker of the Massachusetts House of Representatives; Rev. George L. Perrin, D.D.; Frank Dickerson of the American Tin Plate Company, Henry B. Lupton of the Oliver Iron & Steel Company, James Richard Carter, president Boston Association Board of Trade, and Walter C. English of *The Iron Age*.

Charles Clark Adams of Sargent & Co. acted as toastmaster, and the post prandial exercises under his skilful guidance moved along with smoothness and celerity. Mr. Adams' wide acquaintance with the trade and experience with public functions have made him an ideal toastmaster, and his appearance in that role at the annual dinners of the association has come to be expected. Allan J. Chase, president, who is a representative merchant, proved himself a competent presiding officer.

Preceding the dinner the president, with the honored guests, received the company, who were presented by the following Reception Committee: Oscar A. Shepard, P. F. Burke, Harry L. Doten, Charles F. Dowse, George L. Gould, William P. Hill, Robert E. Hofer, Wilbur Sargent Locke, E. Loring Richards, Henry A. Robbins, Edward P. Sanderson.

R. A. Kirk, president of the National Hardware Association, was invited to attend, but was unable to be present. Prominent Hardwaremen from other cities were in attendance, including L. H. Pease of the Stanley Works, New Britain, Conn.; William Chamberlain of Emery-Waterhouse Company, Portland, Maine; Joseph B. Sargent and Joseph D. Sargent of Sargent & Co., New Haven, Conn.; Samuel Disston, Henry Disston & Sons, of Philadelphia, Pa.; George W. Thurston and James A. Nealey of American Screw Company, Providence, R. I.; J. F. Blauvelt of New England Butt Company, Providence, R. I.; Hon. George W. Weymouth of Atlas Tack Company, Fair Haven, Mass.; Frank M. Trafton, Mount Hope Iron Company, Somerset, Mass.; R. D. Gould, Fitchburg, Mass., and H. S. Hart, American Hardware Company, New Britain, Conn.

The reception was held at 5.30 p.m., and dinner was served shortly after 6 o'clock, to which 125 men sat down.

As usual, during the dinner songs were sung from a book provided, and with the accompaniment of the orchestra. Toastmaster Adams also acted as choir master, and the music much enlivened the courses.

After coffee President Chase announced, with much regret, that Hon. Bird S. Coler and Hon. Patrick A. Collins could not be present, both gentlemen being detained by illness. He spoke of the disappointment of the committee, who thought they had provided an entertainment a little better than usual, and remarked that notwithstanding this everybody seemed to be enjoying the evening. Mr. Chase then made the following address:

President Chase's Address.

It gives me great pleasure to welcome the members of the New England Iron and Hardware Association, together with their guests and friends. It also affords a greater pleasure, if possible, to extend, officially, on behalf of the association, a most cordial and hearty greeting to the guests of honor, who have favored us with their presence on this occasion, and to whose eloquence, wisdom and wit we are soon to listen. The large at-

tendance is evidence of your continued interest and a cause for congratulation.

We meet to-night for our annual dinner; perhaps, speaking more definitely, for the ninth annual midwinter celebration of our organization, of which the dinner is a rather important part, for, as the old adage runs, "He who does not 'mind well' the inner man will hardly 'mind well anything' else." Therefore, if we have "minded well" the bountiful table for the past hour, it is fair to assume we are in a proper physical condition to better appreciate the mental enjoyment that is in store for us.

A word for the association. Within a short period, trade conditions have very materially and rapidly changed the concentration of manufacturing interests and of capital. New and advanced methods of business, wide fluctuations of values and many other important questions are constantly arising, requiring conference with manufacturers and with each other, that the trade may act intelligently and for the common good.

Our organization has been highly beneficial in this respect; in fact, has become almost a necessity, and added to this is the fact that we are sound, solid and successful, with a large membership and a greater amount of good fellowship existing than ever before.

We are therefore proud to celebrate our success, and to-night lay aside all care, that we may eat and drink, in moderation, and make merry in a manner becoming our usually dignified members. To assist in this we invite distinguished gentlemen to honor us. We ask for a representative of our grand old commonwealth—for our honored Mayor, gentlemen from the great Empire State of New York, the clergy, the president of the Association Board of Trade and others.

Our election of officers takes place in the summer, when the material affairs of the association are considered. I think you can hardly care for those details at this time. It would seem that our purpose to-night is in another direction, and I anticipate what is probably uppermost in your minds—viz., that the gentlemen just referred to be given an early opportunity in the proceedings. In this I cordially agree.

But, previous to placing the meeting in charge of the toastmaster, a word should be said conventionally, at least, in his behalf. It is a pleasure to acknowledge our appreciation of the very acceptable manner in which he has officiated in the past. He needs no introduction—is amply able to perform his task without assistance—but by reason of a valued friendship existing from boyhood, it is a personal pleasure to state that his ability covers a wide range, and his experiences have been many. With a Civil War record, of which he is justly proud, and his friends as well, it furnishes many interesting stories, and I believe he has occasionally been known to relate anecdotes with but slight or no reference to the Rebellion. However this may be, he fought valiantly at Gettysburg, and has since fought successfully the severe, though bloodless, Hardware battles.

A royal good fellow and jovial companion, he probably comes closer personally to more of his associates than any other man in the trade.

With this slight allusion to our friend, I take much pleasure in presenting the toastmaster of the evening, Charles Clarke Adams.

Mr. Adams was greeted with cheers given standing and the song, "For He is a Jolly Good Fellow," and spoke as follows:

Toastmaster Adams' Remarks.

I am supposed to assume a position to-night, to direct this most delightful banquet and to introduce to you the speakers of the evening.

I might say here I have heard some allusions to the fact that some reputable members of the Adams family are lying under the sod of Massachusetts, but I assert,

Mr. President, that a man named Adams is able to lie above ground in this good Commonwealth to-day.

To-night we see gathered here the heart and sinew and power of the Hardware trade in New England, which extends through our trade relations all over this Republic. If this is a glory of New England, what must be the wonderful power of all the trade in the 45 States!

In the future we are to pass along, after our duties are done, and the results of such success as we may secure will be the legacy we shall bequeath to our successors.

This seems to me worth a thought, and whatever we are, or whatever we are trying to accomplish, let us give great credit to the men who are on the firing line of to-day, and perhaps the men of the next generation may find their duties and problems made easier because of the conscientious efforts put forward by the men of to-day.

Every merchant and manufacturer full well knows how difficult and puzzling are the questions that are being solved at present. To-day, anyway, we believe we are loyal to the best interests of our chosen trades, and our best wishes are pledged to our successors.

Let us not forget that New England, and Massachusetts as our Mother State to so many of us, tries ardently to be the best and to do the right, and God bless us every one.

Mr. Adams read letters of regret from W. M. Crane, Governor of Massachusetts; R. A. Kirk, president of the National Hardware Association, and then presented Frank Dickerson of the American Tin Plate Company, who spoke as follows, his subject being "Consolidations and Their Bearing on Mercantile Interests During the Twentieth Century."

Address of Frank Dickerson.

It is always a pleasure to visit Boston, the Hub of the universe, for your people are always hospitable, and among them I count very many warm friends.

I presume you have all seen the large fly wheels in mills or factories, many of them being 30 feet in diameter, with the hub placed about 3 feet above the ground. If you watch the hub revolve you will observe that its motion is slow; but standing back a few feet, and watching the rim, you will observe that it revolves with very great rapidity. So with us who do not have the pleasure of living in Boston. We appreciate your literary and artistic sense, which is so very highly developed, but then we think that life moves a little more rapidly with us, who are on the outer edge of the big wheel.

The topic which I am to discuss is stated in the programme to be "Consolidations and Their Bearing on Mercantile Interests During the Twentieth Century;" a very large subject and one which I feel can only be touched upon in the time allotted. Although a member of one of these "consolidations," I doubt if I can give you any particular enlightenment upon this subject. I am like the newsboy to whom his comrade said, "You know a lot, you do!" To which his indignant reply was, "Naw, naw, I dunno nuthin' more'n nobody else."

Yes, the subject is as gigantic as the consolidations themselves; a very big subject. You will recall the conversation of the Irish girl, who returned to England, with her cousin in that country, in which conversation each was bragging about the big things in each country. The English girl asked her cousin if she had seen the big guns at Woolwich, which, she stated, were so large that one could crawl into the gun itself. The Irish-American replied, "I do not know whether we have guns as big as that in America, but we have them that make a big noise, for I understand they fired one in Boston in 1776 and you can hear the sound of it over in England yet."

Yes, gentlemen, I feel how impracticable it is for me to grapple with so vast a subject, and am sorry to disappoint your expectations. I hope my position at the close of this address will not be like that of the minister who, at the close of his first sermon in a new pastorate, said to his senior deacon: "I know you appreciate my sermon was poor; but, Deacon, why that puzzled expres-

sion?" "Yes, Dominie," was the reply, "that was an awful poor sermon, but I know I once did hear a worse one, but am puzzled to remember who preached it."

COMMERCE MAY BE DIVIDED

into five departments—viz., mining, manufacturing, transportation, finance and mercantile. According to my understanding of the topic under discussion, we refer to "Industrial Consolidations"—that is, in the mining and manufacturing branches of commerce, for as yet there has been no real consolidation of mercantile interests, which is the business of buying and selling.

I read in the paper the other day of a speaker who predicted the death of all consolidations within the next ten years. He was a brave prophet, but we must wait to see whether his prophecy shall come true. It seems to me that his statement is a trifle ambiguous, like that of the clergyman who, at the close of a funeral service, remarked to the audience: "You will now pass around the bier." My own opinion is that these consolidations have come to stay, and that the twentieth century will see many more of them than are existent to-day.

SPECIALISTS.

In considering the subject let us note first the effect of the consolidation on its own members. This is, to produce specialists in each branch of the business, for in place of the old method of one man overseeing all departments, the rule in the consolidation is that one man shall supervise the particular branch over which he is placed. This makes those men experts or specialists to a degree unknown in the past.

BROAD MINDED MEN.

The consolidation also produces broad minded men, for although the specialist may be in charge of but one department, yet he is compelled to consult with his co-workers, and his vision is enlarged to cover the whole country, and is now stretching out into Europe, Africa and Asia. Man's physical powers have perhaps already reached perfection, as scientists tell us, but the brain of man has not yet reached its culmination, and the mental vision of to-day is far surpassing anything known in the commercial line in former years. In the nineteenth century seven figures were as much as the commercial man could understand and grasp, but the first year of the twentieth century necessitated men who could understand the meaning in all its branches of ten figures, and who shall say but that the close of this century will see men grappling with 14 or 15 figures as easily as their great-grandfathers with ten.

FAIR MINDED MEN

are also necessary for the success of the consolidation, because the principles underlying the success of the consolidations are the same as those in the individual. Honesty, integrity, economy and perseverance are as necessary in the gigantic industrial corporation as in the individual. A speaker from my city recently addressed one of your New England universities and stated that integrity, industry and perseverance were the only things necessary for commercial success; but he was incorrect. These things accompany success, but without ability will not of themselves bring success.

MARKED ABILITY.

We shall therefore find the consolidation educating men who will be most efficient. In other words, besides producing specialists, and broad minded men, and fair minded men, they will also produce able men—that is, men of marked ability. We have had these four classes of men in our community as long as we have been a nation, but under the consolidation their abilities will be more definitely known than they were in former years, and this will be done of necessity by publicity.

MORE PUBLICITY.

The consolidations are the effect of circumstances well known to you all, but their form and shape have been regulated by all sorts of laws in many of our States. But one law more powerful than any yet on our statute books is public opinion, and public opinion will, I believe, demand more publicity of these consolidations than was ever known of the private business. We are told that there are 40,000 stockholders in the largest of these consolidations, which corporation have already

manifested a desire to publish all that they can make public in regard to their business; but had the managers not shown this disposition the demands of 40,000 stockholders would in time have forced it upon them.

As just stated, these consolidations have taken form according to various State laws, some of which are not more easily understood than the remarks of a householder who sent for a carpenter to repair a Venetian blind. The carpenter was asked: "Can you mend a blind?" "What kind of a blind?" he replied. "A Venetian blind," was the answer. "Sure," said the carpenter. "But," said the householder, "if it be so badly broken as to necessitate a new one, can you make a Venetian blind?" "Yes, sir," was the reply. "And how?" "I would poke his eye out."

UNIFORM AND STABLE PRICES.

Now let us consider the direct effect upon the mercantile community of these consolidations. They bring, as a rule, a uniform price, and a stability of price and trade conditions that have never been known in the past. They thus make it possible to prolong an era of prosperity beyond anything that was known before the consolidation came into existence, of which we have witness in the present prosperous era now in its fourth year. There is no longer a distrust of the true, but, according to a witty clergyman, we are proving the truth of Solomon's maxim, "Put not your trust in riches," by adding the postscript, "but put your riches in trusts."

JOBBER HAS SUCCEEDED MERCHANT PRINCE.

When I was a boy we heard much of merchant princes, but it is a long time since that expression dropped out of the vernacular. And why? Because as a rule they no longer exist. When the United States imported practically all its necessities and luxuries the importer had an opportunity to become a merchant prince which now no longer exists. In the place of the merchant prince we have what is termed the jobber, whose field of operation is perhaps circumscribed and whose trade is localized, but who performs as distinct a service for the public good as did his predecessor. While thus the field of the merchant's operation is curtailed, yet, on the other hand, his business does not suffer, for he finds, as a rule, that these consolidations appreciate the service which he is giving to them and to the public, and they afford him, therefore, a protection that is merited and that to him is exceedingly valuable.

DOING AWAY WITH SPECULATION.

A very important effect of the consolidations is to stifle speculation in the manufactured products. The speculator is always termed unscrupulous, because, seeking only his own immediate profit, he is utterly regardless of the public good. The speculator is banished from markets controlled by consolidations, and no one mourns his disappearance. The jobber need not grieve that he has lost all, because he has no need to speculate in merchandise. "All is not lost," but his position is similar to that of the religious young lady who, asked by her rector what she would give up in Lent, replied, glancing at her left hand, "I will give up one engagement ring, for I don't think it's right to be engaged to two men in Lent, do you?"

There is a tendency in the large consumer to disregard the jobber and to deal direct with the consolidation, and this tendency may grow; but it hardly seems likely that at the present time it will seriously interfere with the trade of the mercantile community. Great power is intrusted to the trust, but if wisely administered it will redound to the advantage of all parts of the community, and to the mercantile part as to any other. Many of us can remember when in merchandise there was not only the importer, but the broker and the merchant as well as the consumer. Now the broker in merchandise has largely disappeared from sight, but the jobber is still with us, and we trust will be throughout the century.

CONSOLIDATION OF MERCANTILE INTERESTS.

As yet we have had no distinct consolidation of mercantile interests in any given trade, but it has been whispered that such a thing is contemplated. He would

be a bold man who would predict that it would come to pass, or who would deny such a prediction, but this much we may say: that if co-operation and consolidation have been found to be the best things extant for the manufacturing interests why may not the same principle be applied to the mercantile portion of the commercial community? We are all somewhat selfish, perhaps, in our personal affairs, but nevertheless there is enough of the true American spirit in us that we realize the truth that whatever is for the good of all will also benefit ourselves. We therefore have a hearty welcome for whatever is for the welfare of the nation, looking forward to the time when every citizen beneath our starry flag shall acknowledge the Fatherhood of Almighty God and the brotherhood of all mankind.

Hon. James J. Myers' Address.

Hon. James J. Myers, speaker of the Massachusetts House of Representatives, was the next speaker, his subject being "The Attitude of the State of Massachusetts Toward Corporations and Consolidations."

After some introductory pleasantries the speaker said:

As one of the citizens of Massachusetts, much interested in her legislation, I have come to speak a few minutes upon the attitude of Massachusetts toward corporations and consolidations.

I am very glad to have this opportunity, because the question is one that concerns the business world deeply. It is only a very few weeks since that a very able and eloquent gentleman from the State of New York addressed a gathering in this city upon that question. He called the attention of the business men of Massachusetts to certain considerations pertaining to present business conditions, and some of his suggestions were, I think, exceedingly wise and worth while for us to consider. Whether or not he went too far may be an open question, but I propose in speaking to you as New England men, many of you Massachusetts men, to call attention to a few of the considerations which I think weigh in dealing with this great problem.

A FUNDAMENTAL PROPOSITION.

It has often been pointed out by those who deal with these questions theoretically that there are certain features which must not be lost sight of, and one of those propositions which I think is almost fundamental with many of the men who down to the last three or four years have considered the question is this—and I submit it for your consideration here to-night—that as a general proposition where competition absolutely ends some kind of supervision by outside authority must begin. I know of no escape except the good nature and the kind heartedness of the men who have the control of the monopoly, if they have a monopoly and are not subject to any supervision. I think that is a proposition that will stand a good deal of examination before the advocates of any notion of business expansion will overthrow it. That does not mean that I am opposed to what is going on, but I merely lay that down as a fundamental proposition.

That proposition has been applied in Massachusetts in the first place to all the public service corporations. They differ from your industrial corporations in that they must of necessity do most of their work—practically all of it—within the borders of our own State, and they cannot claim that we prevent them from doing their best by throwing them into competition with others. And so Massachusetts has laid down the general proposition that her public service corporations are to have a certain supervision.

GROSS OVERCAPITALIZATION.

That supervision consists in the first place in determining—or, at least, having a great deal to say—as to the amount of their capitalization. For it is perfectly obvious that if you have large overcapitalization, and have faithful and zealous directors, you are going to have men who are trying to earn dividends upon the overcapitalization, and in order to earn the dividends in this class of corporation upon the overcapitalization you must take it out of the things that are carried, or the gas that is burned, or the electric light that's consumed—or whatever the product may be. You can't make a dividend upon a hundred thousand dollars of

water without collecting it out of somebody and out of some interest.

And so, gentlemen, I stand to say that Massachusetts, in laying down the doctrine that there shall be *some* supervising tribunal or authority which shall see to it that there is not gross overcapitalization in her public service corporations, is acting wisely and intelligently if she designs to prevent you business men from having to pay dividends upon water instead of money that was put in. I don't see how there can be any escape from that as a sound business proposition. I am a lawyer and not a business man, but I have done some business, and I know no way of earning dividends except by collecting them out of the business done.

And now we come to deal with the industrial corporations. Is overcapitalization wise in industrial organizations? All combinations, whether in the form of corporations or consolidations, so far as they make possible large operations and thereby diminish expenses, tend to economic production and are sound and wise, even though they embody a billion of dollars in their capitalization. But the moment that overcapitalization enters into that proposition, the moment that there is one hundred millions of the one billion dollars—if you get it in large figures—that is water, that moment there is the necessary pressure to earn a dividend or to collect a dividend upon the water, and the desirable end of economic production and low prices is counteracted by the need of high prices to pay a dividend upon watered stocks.

To me there is very little difference between flat money and flat stock. You can as well capitalize a vacuum as you can make money cover a vacuum. You can as well get a blind pool in that way and injure prices, crowd them up in order to earn a dividend upon values that do not exist, as you can deceive in any other way in business. Now while I want to make it clear that Massachusetts in the future will not, I hope, stand for any narrow and close and absolutely hard and fast policy of capitalization merely upon actual seen tangible values, I hope, on the other hand, that the day is far distant when Massachusetts—though ever standing ready to let all values be capitalized to their fullest—will consent to let a vacuum be capitalized under her law.

SOME RESTRAINTS THAT MIGHT BE REMOVED.

At present I think it is perfectly true that we impose restraints upon capital here, that in the case of industrial corporations it would be wise to remove. I agree perfectly with Mr. Milburn that a greater comprehensiveness of purpose for the capitalization of corporations and more liberty in the amount of the capital actually paid in might just as well be permitted in Massachusetts. And Massachusetts has within the last three or four years advanced in this direction. I have here a little slip showing that one corporation has established itself in Massachusetts with something over four millions, and others can do it, but the reason that more has not been done—aside from other considerations—is that our taxation laws sadly need amending.

LEGISLATIVE CONDITIONS IN OTHER STATES.

Beyond that is another question. It is the question of how far it is wise and expedient, in view of the conditions of legislation of other States, for us to go. We admit that other States by making it so easy to capitalize at any price that a man sees fit to put upon his wares, by making it possible, as you may read almost any day in our papers, to capitalize for \$100,000, \$200,000, \$300,000 or \$400,000, and pay in \$25 or \$50, puts us at some disadvantage, that Massachusetts by that policy in other States loses much which she ought to have in the way of business capitalization by her own men in her own borders.

I have the figures before me, obtained to-day at the State House, which show that in the last 18 years while about 4100 corporations have been organized in Massachusetts under Massachusetts law to do business here, about 5100 corporations have been organized in States outside, and have filed the proper certificates to do business here. Now so far as our business men are driven out by these unsuitable restraints upon capitalization,

and by severe taxation, it is a great mistake. But so far as they go outside to capitalize in order to get the benefit of the law of Maine, which makes it possible to capitalize for \$100,000 or \$200,000 and pay in \$25, I submit it to the calm judgment of you business men whether the State of Massachusetts yet wishes to compete in that kind of values. My own judgment is that it is going too far—better to lose something than adopt so unsound a policy.

FOSTERING ECONOMIC PRODUCTION.

So far as these great business enterprises are capitalized for economic production, let us foster them and compete with our sister States in getting them, but so far as the "velvet" is the mainspring of the consolidation, so far as getting the "bankers' profits," and not the producers' economy, is the object, I tell you that Massachusetts in the long run will be sounder and wiser if she follows the line of straight principle than if she wanders off in the hazy paths that are now pursued by some of the States which some of our friends praise.

BUSINESS SAFEGUARDS.

For myself I have little fear that Massachusetts, if she will come up to the full standard of wisdom as she sees it, if she will revise her corporations laws so as to make them safe, sound and progressive and yet anchored to true and sound safe business principles—I have little fear that she will fall in the rear. My conviction is that if Massachusetts adopts the sound business method which asks a dollar of value when it issues a dollar, whether it is in money or in note or in stock, and then pays that dollar when the time comes, deceives no man with paper securities, collects no dividends upon water, but nevertheless keeps her eyes to the front, and keeps as far in advance as she can with progressive but sound legislation, she will continue to lead as she has led in the past along the sound and safe business lines.

I have no fear but that if we make such progress as that, if we liberalize, as I have said, our laws as to taxation, if we give publicity as it should be given, and then hold fast to those safeguards of sound business honesty and morality that have made Massachusetts the synonym for integrity and honesty from ocean to ocean, we shall be carried over the sloughs and the dangers, and, in my opinion, will produce organizations of business men that will stand firm and strong, and erect when the storm, that may come, and I believe will come, has swept down the baseless card structures that have been reared in many a State.

The next speaker was Rev. Dr. Geo. L. Perrin, whose subject was "The Task and the Man," which, after relating several good stories, he handled seriously and entertainingly.

At the close of Dr. Perrin's address, Henry B. Lupton of the Oliver Iron & Steel Company, Pittsburgh, Pa., was introduced, and spoke as follows:

Henry B. Lupton's Address.

I assure you that I much appreciate the compliment of once more being invited to meet this association at its annual dinner.

Coming as I do from Pittsburgh, you probably feel a deep interest in any message I may bring as to what may be going on at that great and prolific theater of iron manufacture, for in that district are assembled the ore and manganese, the coal, the coke and the limestone from which about 60 per cent. of this country's steel and iron is now produced, and in its finished and half finished state it is distributed all over the world.

In 1899, as well as in 1900, there was made in this country about 14,000,000 tons of pig iron; in 1901 all previous records were passed and the output was 16,000,000 tons for the year. Notwithstanding this marvelous production the manufacturer commenced the new year with almost no stock in his yards, and to-day there is an absolute famine of iron in many districts. Practically, there is no iron for sale, and it is hard to get what has been sold.

The railroads have found it impossible to supply the necessary cars, and many blast furnaces and mills have been compelled to shut down for need of materials.

WHERE IS THIS TREMENDOUS TONNAGE GOING?

First, the railroads are the largest consumers; laying down heavier rails, building stronger and better bridges and equipments. Nearly 2,500,000 tons of steel will this year go into rails and the necessary fastenings and, owing to the new pressed steel car, nearly 1,000,000 tons of metal will go into cars alone.

The shipbuilding interests are increasing their capacities; they were never so busy, and their consumption is enormous.

With the prosperity of the past few years great structures are going up that take hundreds of thousands of tons of steel, and then, with the Agricultural Implement manufacturers and the countless industries that are consuming iron and steel in greater quantities than ever before, you can appreciate what demands are made upon us.

Dun's Review of last week, said: "Controlling interests deprecate all tendencies to inflate prices, recognizing the fact that continued heavy consumption is dependent upon quotations held at a reasonable point." Nevertheless, immediate deliveries command a premium, but that is not supposed to affect the general quotations. Consumers that must have iron are willing to pay something for immediate attention, but this class is now so large that they cannot all be accommodated.

A few years ago we heard that cotton was king, then that corn was king, but now iron is king, and from its American throne it rules the world.

THE PROBLEM OF THE FUTURE.

Great as is the prosperity of this country, what a great work is still before us in the maintenance of conditions essential to national prosperity and progress. Walt Whitman said: "It is provided, in the essence of things, that from any fruition of success, no matter what, shall come forth something to make a greater struggle necessary."

THE WORLD MUST BUY OF US

because we have the goods to sell, and the great fact is that to America has come more and more the leadership in trade, manufacturing and financial supremacy, and it marked a new epoch in our history when the Chancellor of the Exchequer arose in the House of Commons and stated that he had placed in the United States more than one-half of a new war loan.

The financial center of the world is moving from London to New York, and the United States is now a creditor nation.

At the end of Mr. Lupton's address Toastmaster Adams announced the close of the after dinner exercises, and with the singing of "America" the company dispersed.

The evening was a success in every respect, although regret at the absence of distinguished guests was general. The speakers present, however, furnished entertainment and instruction of a high order.

List of Those Present.

Following is a list of those who participated in the gathering:

James Richard Carter.
Hon. James J. Myers.
Allan J. Chase.
Frank Dickerson.
Rev. George L. Perrin, D.D.
Henry B. Lupton.
H. W. Tappan.
Chas. Clark Adams.
Samuel G. King.
George B. Dexter.
A. W. Holway.
Wm. Chapman.
H. N. Lothrop.
D. J. Green.
Josiah E. Bacon.
Charles F. Dowse.
Samuel A. Bigelow.
Charles A. Burditt.
James A. Munroe.
W. E. Bartholomew.
Joseph H. Williams.
Charles H. Breck.
Increase E. Noyes.
T. B. Coles.
Wm. Chamberlain.
R. D. Gould.
W. T. Hidden.
George M. Gray.
George P. Koch.
Thomas M. Holden.
Benj. Lamont.

Samuel Disston.
Leon C. Carter.
T. H. Taylor.
Francis B. Dana.
Chas. B. Stanley.
E. E. Gallagher.
F. F. Hodges.
L. W. Thompson.
J. N. Mason.
E. H. Mansfield.
James N. Frye.
Joseph B. Sargent.
F. M. Smith.
E. Loring Richards.
H. S. Hart.
A. M. Wiley.
C. A. Earl.
D. F. Barber.
A. G. Bowman.
F. W. Marshall.
Frank M. Trafton.
Wm. M. Prest.
Charles King.
F. W. Brown.
F. J. Brown.
Edwin L. Haley.
D. Arthur Brown.
Harry A. Brown.
P. F. Burke.
Dr. John P. Treanor.
M. McBarron.

Wm. H. Bense.
Thomas H. Baldwin.
Wm. A. Hopkins.
John H. Robbins.
A. H. Decatur.
George J. Mulhall.
H. M. Sanders.
W. G. Angell.
J. F. Blauvelt.
James A. Nealey.
Geo. W. Thurston.
John Speirs.
S. C. Fischer.
H. E. Nickerson.
Johns H. Congdon.
G. C. Carpenter.
Chas. R. Stark.
F. W. Carpenter.
P. E. Strauss.
Geo. W. Herrick.
Wm. Q. Wales.
James F. Savage.
E. J. Neale.
Hayward C. Dodge.
Wm. M. Horne.
Wm. C. Merrill.
E. P. Sanderson.
Walter C. English.
Joseph D. Sargent.
G. Irving Rice.
James Denny.
Hon. G. W. Weymouth.

Luther Little.
Geo. P. Bullard.
Josiah N. Bacon.
Wm. H. Bacon.
A. C. Harvey.
C. F. Bragg.
Charles H. Parker.
John T. Chase.
H. W. Hayes.
R. S. Woodruff.
C. W. Henderson, Jr.
Robert E. Hofer.
A. H. Inman.
L. B. Morris.
R. M. Boutwell.
Elmer Chickering.
Oscar A. Shepard.
George A. Hibbard.
A. H. Ranlett.
John W. Saxe.
H. W. Walte.
W. Sargent Locke.
Edward A. Loomis.
J. Bradford Hunter.
John T. Boyd.
Harry L. Doten.
Dr. W. A. Paul.
Francis B. Austin.
C. E. Burton.
Fred. H. Butts.
F. W. Brigham.

SPORTSMEN'S SHOW.

THE eighth annual sportsmen's show, under the auspices of the National Sportsmen's Association, opened in Madison Square Garden, New York, Wednesday, March 5, and will be continued for the two weeks following, exclusive of Sundays, closing on Wednesday night, March 19. In the construction of the wooded island in the great amphitheater and the mountains and forests at one end, many hundreds of pine, spruce and hemlock trees have been used in carrying out the plans and much ingenuity has been employed in creating the mountains, streams, cascades and waterfalls, as well as the reproduced portions of the Adirondacks. There are game parks, aviaries, aquariums and boats of various kinds, including power launches, canoes, ducking boats, sneak boats and rowboats.

There are interesting camps of Indians, Adirondack and Maine guides, as well as similar headquarters for the Long Island baymen. The game parks contain live specimens of buffalo, moose, deer, caribou and antelope. The bird cages, fox yards and temporary domiciles of other fur bearing animals are larger and more fully occupied this year than heretofore.

A marked feature of the show is the display of mounted birds, birds' eggs and nests belonging to John Lewis Childs, Floral Park, L. I.; which occupies about 1000 square feet of floor space.

The members of the Camp Rainbow Club are composed of lads from 20 or more of the best known private schools for boys in and about Greater New York, their camp being pitched on the banks of a stream near the east end of the garden, and, attired as guides, they will conduct visitors over the deer trail that winds about the mountains.

The programme for the fly casting contest has been arranged to provide for an event on each day of the exhibition for the various classes of anglers, both amateur and professional, including both adults and minors of both sexes, with and without entrance fee.

HON. ALBERT D. BOSSON, president Boston & Lockport Block Company, Boston, Mass., is reported as having reached Florence, Italy, on the steamer "Commonwealth." Mr. Bosson is accompanied by his family, and will remain abroad about six months. Incidentally he expects to gather some valuable information for the company.

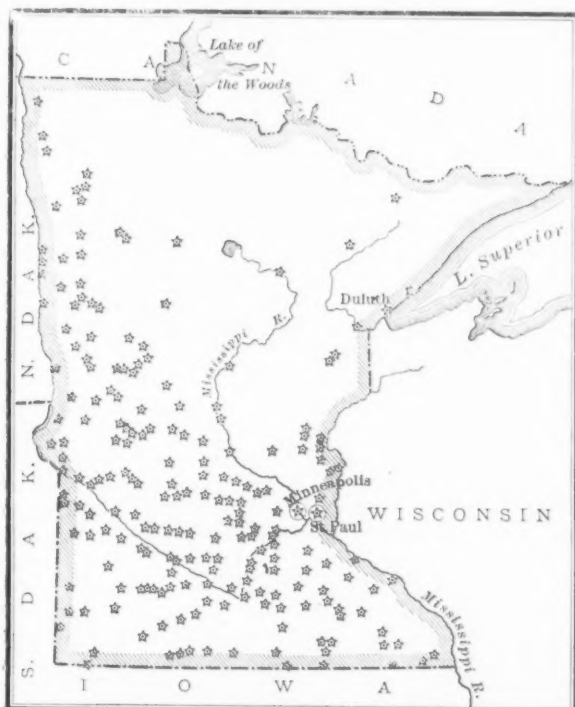
ATLAS PIPE WRENCH COMPANY, 51 Flood Building, San Francisco, Cal., and 121 Liberty street, New York, are the manufacturers of the Atlas Pipe Wrench and Atlas Tube Cleaner. Concerning the Tube Cleaner, they have on exhibition at their New York office samples of the scale removed from boiler tubes through the agency of the Cleaner, as proof of its effectiveness. One of the large sugar refineries which have been testing the device have recently ordered a number of additional Tube Cleaners. The Pipe Wrench is of peculiar construction, having three distinct points of adjustment for varying diameters of pipe.

The Minnesota Retail Hardware Association.

THE Hardware merchants of Minnesota maintain a high degree of interest in their State organization. This was manifested by the large attendance at their sixth annual meeting, held in St. Paul on February 26, 27 and 28. The officers of the association for the year ended with this meeting were as follows: President, W. H. Tomlinson, Le Sueur; vice-president, H. S. Cleveland, Minneapolis; treasurer, G. M. Evenson, St. Peter; secretary, Thomas McCracken, Minneapolis; Executive Committee, W. H. Tomlinson of Le Sueur, H. S. Cleveland of Minneapolis, F. E. Hunt of Red Lake Falls, C. F. Stremel of Minneapolis, Benjamin F. Kernkamp of St. Paul, A. C. Hatch of Battle Creek, Joseph Mason of St. Peter, Charles F. Ladner of St. Cloud, S. R. Nelson of Owatonna, Julius Schmidt of Wabasha, E. H. Loyhed of Faribault.

HARDWARE ASSOCIATION MAP OF MINNESOTA.

Herewith we give a map of Minnesota, gotten up especially to indicate the great success of the Hardware



Hardware Association Map of Minnesota.

association movement in that State. It will be observed that the settled parts of the State are characterized by a strong association flavor. The Minnesota Association is probably stronger, numerically at least, than any other similar organization, having a present membership in excess of 500, out of a total of 800 legitimate Hardware dealers in the State. This is a handsome percentage, and the officers of the association are to be congratulated on the splendid result of their work.

WEDNESDAY AFTERNOON SESSION.

The first session of this convention was called to order at 2.15 on Wednesday afternoon by President Tomlinson, who directed Secretary McCracken to call the roll. The following were registered as in attendance, but quite a number, as usual, failed to record their names:

John Schleck, North St. Paul.
H. R. Schroeder, St. Paul.
C. L. Sulerud, Halsted.
Jos. T. Hanson, Shelly.
K. Ruvese, Farmington.
Herman Stege, Nicollet.
P. M. Jenney, Fairfax.
J. L. Brink, West Concord.

Cain Bros., West Concord.
Christ Juni, Jordan.
Nils S. Taarud, Tracy.
J. G. Koch, Canby.
Geo. F. Duerve, Plainview.
Julius Schmidt, Wabasha.
O. J. Johnson, Waseca.
C. A. Newgard, New Richland.
Aug. O. Tysen, Lowery.
A. Linderholm, Belgrade.
Peter O. Roe, Sacred Heart.
C. V. Ferguson, Chatfield.
Jensen Pederson, Tyler.
L. A. Williams, Pelican Rapids.
J. G. Hoffa, Rush City.
Chas. Grill, Sherburne.
Gunderson & Son, Kenyon.
O. F. Peters, Cannon Falls.
J. O. Peterson, Canby.
W. B. Gislason, Minneota.
H. N. Dohl, Minneota.
Ing Johnson, Hanley Falls.
J. G. Slater, Correll.
H. C. Estby, Cyrus.
G. Hollerud & Co., Sauk Center.
Gennick & Rolf, Lester Prairie.
F. A. Fuller, Park Rapids.
Alfred Munz, Princeton.
O. H. Heinmark, Clarkfield.
J. N. Feyder, Osceola, Wis.
M. Lehrer, Springfield.
Ben Clayton, St. Croix Falls, Wis.
B. D. Grant, Princeton.
J. J. Kraker, Melrose.
J. H. Carlaw, Balaton.
C. S. Williams, Lake City.
C. H. Casey, Jordan.
E. H. Helms, Renville.
O. D. Duckhoff, Worthington.
C. D. Bourk, Hoyallon.
Summer Mayott, St. Paul.
G. T. Streuzel, Morton.
Frank E. Hunt, Red Lake Falls.
Elmore Houghtaling, Fairmont.
J. C. Nolting, St. Paul.
F. Nolf, Jr., Jordan.
J. M. Thompson, Owatonna.
E. K. Evans, Princeton.
John Torgeson, Canby.
Jos. Mason, St. Peter.
E. O. McGaffey, Buffalo.
McNulty, Wheeler & Helgeson, Litchfield.
W. H. Tomlinson, Le Sueur.
Geo. M. Evenson, St. Peter.
M. J. Schroeder, St. Paul.
Clement Schroeder, Mankato.
F. J. Selpp, Brainard.
Thorpe & Co., Jordan.
M. F. Brose, Henderson.
Jos. Wenbelsor, Belle Plaine.
C. R. Klinkenburg, Lester Prairie.
W. A. Barto, Long Prairie.
J. W. Berg, Little Falls.
Keltter Bros., St. Peter.
John Williamson, Young America.
Wm. Werner, Winsted.
A. J. Sitz, New York Mills.
M. J. Solum, Hitterdal.
C. E. Kremre, New London.
Currie Hardware Company, Currie.
F. G. Chambard, Hanska.
O. A. Bishop, Blue Earth.
Theodore Systad, Ada.
Geo. W. Helms, Wabasso.
H. Madeson, Slayton.
G. W. Chambard, Hanska.
A. F. McDonald, Morris.
R. Peterson, Lyle.
O. N. Johnson, Gibbon.
J. F. Vanasek, Montgomery.
J. N. Silver, Clarkfield.
E. L. Meyers, Woodstock.
H. D. Jacobson, Clarkfield.
J. W. Crabtree, Herman.
H. F. Heinek, Bertha.
P. Vander Sling, St. Cloud.
C. D. Burgan, St. Cloud.
James Hamen, Shelby.
G. T. Strenzel, Morton.
M. J. Amle, Benson.
P. H. Klefer, Barnesville.
Wm. Guos, Hithing.
Wm. Oetting, St. James.
P. L. Van Norman, Montevideo.
B. Luke, Battle Lake.
J. P. Watson, Marshall.
L. J. Larsen, Winthrop.
H. O. Roberts, Minneapolis.
C. A. Stoltzman, Montrose.
T. A. Raustad, Battle Lake.
K. Hansen, Battle Lake.
C. B. Johnson, Cannon Falls.
Jos. Karl, New Prague.
A. T. Stebbins, Rochester.
H. Hoode, Kensington.
J. R. Sleisgrove, Le Sueur.
C. F. Stremel, Minneapolis.
J. Johnson, Minneapolis.
J. A. Wedenn, Kensington.
Chas. H. Wall, Faribault.
T. F. Vollmer, Gaylord.
Chas. F. Ladner, St. Cloud.
H. E. Humphrey, West Superior, Wis.
H. P. Fuller, Crookston.
Andrew Anderson, Atwater.
Lundberg, Peterson Lumber Company, Cambridge.
A. J. Ostrom, Evansville.
E. L. Burlington, Hawley.
C. M. Graschen, St. Bonifacius.

Aug. Wartell, Norwood.
 Adolph Nygreen, Lakato.
 Geo. D. Parmelee, Rochester.
 J. C. Stuhlman, St. Paul.
 A. L. Bratsch, Renville.
 W. J. Heaney, Olivia.
 E. B. Buor, Elizabeth.
 Wm. Russell, Stephen.
 J. W. Thompson, Hancock.
 Marcus M. Olson, Raymond.
 J. O. Smith, Deer Creek.
 A. Dohl, Bird Island.
 St. Anthony Hardware Company, St. Anthony Park.
 Peter Nelson, Red Wing.
 Emil Omed, Red Wing.
 Hansen & Parsons, Franklin.
 J. H. Burl, Annandale.
 F. L. Hempson, Ada.
 Jas. H. Keegon, Louisville.
 F. C. Weaver, Eden Valley.
 M. E. Anderson, Atwater.
 Iver R. Anderson, Minneapolis.
 Harry L. Anderson, Braham.
 Atwater Hardware & Machine Company, Atwater.
 Scott M. Abbott, Watertown.
 G. Boehme & Sons, Minneapolis.
 C. E. Batties, St. Paul.
 Fred. Bodell, Stanchfield.
 Geo. Biebighauser, St. Paul.
 O. P. Benson, Chokio.
 E. T. Burlingham, Hawley.
 Chas. W. Bouck, Royaltown.
 M. J. Casey, Jordan.
 J. R. S. Cosgrove, Le Sueur.
 T. H. Caley, Princeton.
 H. V. Staddon, Minneapolis.
 R. Jac. Kenna, Minneapolis.
 H. S. Cleveland, Minneapolis.
 C. H. Cleveland, Minneapolis.
 F. Carlstrom, Minneapolis.
 Geo. W. Cohoon, St. Paul.
 O. W. Dieckhoff.
 M. F. Dressler, Minneapolis.
 A. Dahl, Bird Island.
 Jno. J. Daly, Stephen.
 Harry English, Zimmerman.
 Ed. Eltson, River Falls, Wis.
 D. H. Evans, Tracey.
 H. C. Estby, Cymo.
 A. W. Ferrin, Rushmore.
 John Fergerson, Canby.
 H. H. Flowers, Cleveland.
 F. A. Fuller, Park Rapids.
 C. F. Forssell.
 H. J. Gouldberg, Cambridge.
 A. L. Getchell.
 G. H. Gerberding, Minneapolis.
 E. H. Helms, Renville.
 C. W. Helms, Renville.
 Geo. N. Helms, Renville.
 B. W. How, Duluth.
 Geo. W. Wells, Duluth.
 J. P. Hedberg, Kensington.
 James T. Hanson, Shelby.
 H. H. Heydon, Chatfield.
 H. F. Helms, Bertha.
 Oscar Handeby, Minneapolis.
 J. F. Harris, Minneapolis.
 G. Hillund & Co., Sauk Centre.
 Frank E. Hunt, Red Lake Falls.
 Elmore Houghtahrig, Fairmont.
 Kromes Hurley, Bird Island.
 J. G. Hopps, Rush City.
 F. M. Janney, Fairfax.
 C. J. Johnson, Gebbom.
 J. P. Jensen, Tyler.
 F. A. Johnson Company, Elbam Lake.
 B. F. Kernkamp, St. Paul.
 Aug. Kernkamp, St. Paul.
 John H. Kernkamp, St. Paul.
 Theo. Kernkamp, St. Paul.
 F. W. Lucas, Litchfield.
 Aug. O. Lysen, Lowry.
 O. L. Lundberg, Isante and Cambridge.
 F. A. Lowe.
 A. Lindholm, Begrode.
 J. F. McGuire, St. Paul.
 James Fraser, St. Paul.
 J. J. Dally, St. Paul.
 M. De Motte, St. Paul.
 W. McVeigh, Minneapolis.
 F. C. Meier, Eden Valley.
 A. Marzolf, St. Paul.
 J. T. McNulty, Litchfield.
 Thos. McCracken, Minneapolis.
 Jos. Mason, St. Peter.
 Edw. F. Miller, St. Paul.
 E. S. Mellinger, Lake City.
 J. C. Nolting, St. Paul.
 F. Jos. Neubelsar, Belle Plaine.
 E. O. Peterson, Red Wing.
 P. Edw. Paulson, Cambridge.
 C. W. Parsons, Franklin.
 F. A. Revord.
 O. A. Readfield, Minneapolis.
 Herman J. Rader, Heron Lake.
 Benj. Rees, Waterville.
 G. A. Rieke, Fairfax.
 R. Reterson, Lyle.
 A. C. Hatch, Battle Lake.
 F. Vanesek, New Prague.
 Thos. F. Vanesek, New Prague.
 F. C. Volbur, Cleveland.
 J. Rob. Tester, Gibbon.
 H. E. Swensen, Canby.
 W. F. Schoepf, Minneapolis.
 A. O. Stark, Harris.
 J. H. Smith, Minneapolis.
 Arthur J. Dean, Minneapolis.
 J. L. Wells, Minneapolis.
 G. E. Woehler, Camden Place.
 Leon C. Warner, Minneapolis.
 Seb Zimmerman, Mankato.
 Fred. C. Lappert, Wylie.
 E. O. Raulsen, Minneapolis.

Mayor R. A. Smith of St. Paul was introduced and welcomed the convention to the city. He alluded to the

changed conditions in the commercial world, and noted the fact that the association was organized for the purpose of meeting them. He dwelt on the great progress made in the Hardware trade, and on the fact that Hardware is now sold by merchants who make it a specialty.

A. T. Stebbins of Rochester thanked the Mayor for his hearty welcome. St. Paul is no new city for the association to meet in, it having held meetings here before. He painted the glories of the city and the State and the great resources in iron and other metals, also the great agricultural interests. St. Paul represents the wealth of the State, having great jobbing and manufacturing interests. The members of the association are men who belong to one of the great commercial branches of the country's trade. They meet not to form a trust, nor to take steps to restrict trade, but to decide upon the best measures to advance the best interests of all. He alluded to the formation of great trusts and to the recent merger of great railroads and asked if the members would stand by the Governor of the State in opposing the railroad merger, to which a hearty affirmative response was made. In the course of his eloquent address, he paid a graceful tribute to *The Iron Age*.

The President's Address.

President Tomlinson read his annual address, as follows:

It is with genuine gratification that I call this, our sixth annual, meeting to order. I am pleased to see so many of our members in attendance, showing an increased interest in our work.

Our association, the first to organize, is no longer an experiment; it has attained a solid footing. Composed of the best Hardwaremen of the State, we have steadily increased until we have now over 500 members.

Our finances are in a very satisfactory condition, and we are a power for good. During the year that has passed everything has moved along pleasantly. There has been no friction between the officers and the Executive Committee, and under the care of our efficient secretary the work has advanced satisfactorily. We have enjoyed a prosperous year, and none of our members have been taken away.

One of the many evils which we have organized to overthrow has been done away with, and it would seem poor business sagacity for any one to reorganize it in the expectation of making it a success with 500 of the best Hardware dealers and many other dealers in the State to use their influence against it.

INSURANCE FEATURE.

To-morrow, President Hatch will give you the report of our insurance department, showing such phenomenal success that with the exception of one loss in North Dakota in the second year of its existence the interest on the funds in the treasury has paid all our losses. I must earnestly recommend to all our members that as soon as practicable they place a part of their insurance with our company. We do not intend to take any risks that are hazardous, but we want to give good, safe, reliable insurance at cost.

CO-OPERATIVE BUYING.

Another matter of importance which I wish to bring before you is that of co-operative buying. I believe this plan to be to our interest. In buying together we shall only be imitating our friends, the jobbers, who do it with great success. If we can buy together, and save from 5 to 10 per cent. in so doing, we can offer a strong inducement and practical argument to good business men to become members with us. If you think it advisable a committee might be appointed to consider this matter.

The proposition to join the National Association will come before you for consideration, and your decision may have great consequences for good or ill to our State Association. Our Executive Committee will report on the subject, as they have been requested to do, and the matter will be left in your hands for action.

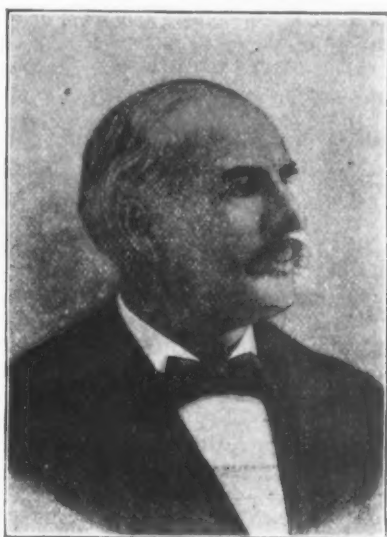
I wish most heartily to thank the trade papers for their uniform kindness and courtesy toward our asso-

ciation. I wish to congratulate you on a prosperous business year now past, and on the prospect of continued prosperity in the immediate future, and in the progress, unity and hopeful outlook of the Minnesota Retail Hardware Association.

PREPARATION FOR BUSINESS DEPRESSION.

The present business activity realized in all parts of our country is not likely to continue indefinitely. Now is the time to prepare for the business depression which is certain to succeed these years of plenty, and the solidifying of our organization that we may present a solid front to adverse circumstances will be simply wise business policy. The day of isolation in business is gone by. Business is becoming more and more a science. Competition grows more and more intense each year, and to meet these changing conditions the organization of business upon a fraternal and co-operative basis becomes an actual necessity.

In conclusion, permit me to say that the acquaintances and the friendships I have made with my colleagues throughout the State since the organization of



W. H. TOMLINSON, President.

our association and the information I have received from them has more than repaid me for all the time and money I have expended in attending our annual meetings.

J. F. McGuire's Address.

J. F. McGuire of St. Paul was called on. He announced that the rooms above the hall were the quarters of the Builders' Exchange, in which the St. Paul Retail Hardware Dealers' and Sheet Metal Workers' Association also hold their meetings, and that the rooms were offered to the members of the association for their free use during the convention. He warmly seconded the welcome extended by the Mayor. He alluded to the importance of the Hardware trade and gave some interesting experiences and examples to illustrate this fact. The great variety of articles handled by the trade compelled Hardware merchants to be men of more than average intelligence. He pointed out the desirability of forming local associations and gave a brief history of the St. Paul local association, which has accomplished much of benefit to the members. While not organized to fix prices, the members of the association by becoming better acquainted with one another have learned not to sacrifice prices in competing with one another. Consumers have not been compelled to pay high prices, but have paid fair prices, enabling a reasonable profit to be made. He urged that dealers should do the same in other cities and towns. Through an association the matter of credits can be regulated and buyers can be prevented from going from one store to another, running up bills and not paying them.

J. C. Nolting of St. Paul, president of the local association, added to Mr. McGuire's commendation of local

associations. The maintenance of prices was a very important matter to be accomplished through them.

Appointment of Committees.

The appointment of the following committees was announced:

INSURANCE: A. C. Hatch, Battle Lake; Knute Hansen, Battle Lake; Julius Schmidt, Wabasha; O. F. Olson, Brandon; A. E. Anderson, Rothsay.
PRESS: J. F. McGuire, St. Paul; C. Schroeder, Mankato; J. P. Watson, Rochester.
GRIEVANCES: E. H. Helms, Renville; C. V. Ferguson, Chatfield; P. H. Caley, Princeton.
RESOLUTIONS: A. C. Stebbins, Rochester; C. F. Ladner, St. Cloud; J. C. Nolting, St. Paul.

The Secretary's Report.

Secretary McCracken read his report, as follows:

We have gained during the year 72 new members, but are sorry to say that we have about 47 dealers, who have been connected with us at different times during our organization, who are in arrears for dues. We hope a number of those are present at this annual meeting and will unite with us. In estimating the strength of our association, the delinquent list is always an uncertain quantity to be reckoned with, but we can safely claim 500 members to-day, which makes our association the largest of its kind in existence.

It is the wish of your officers that we may ever remain so, and in this connection we most respectfully ask you to read the letter of Vice-President H. S. Cleveland, published in our programme. We have had eleven complaints from members during the year, all of which have been satisfactorily adjusted either by the secretary or the Executive Committee. There is one complaint as yet unsettled in the secretary's hands and we cannot now inform you of the result. We have received letters from the following parties, with the request to read them to the convention:

R. Reirson, Twine.

Minnesota Local Hardware Association.

Halstead Lumber Company.

These letters bring up live issues to our association, and are most respectfully referred to the convention for their consideration.

A VERY BUSY YEAR.

We are now entering upon a new year of our life as a Hardware association, with the anticipation that its close may be signally marked in our work of uniting the retail dealers of our State in all things pertaining to our commercial interest and advancement. We have had a very busy year, and to the ability, discernment and the tireless energy of our officers and Executive Committee we ask you to give full measure of credit for whatever we have accomplished. They have been faithful to the trust you reposed in them one year ago, diligent at all times in duty, zealous in advancing and guarding the principles of our association, and in maintaining the dignity and honor, the high standard of excellence in administrative ability, which has ever been accorded to the official acts of the Minnesota Hardware Association.

Whatever we may have accomplished as your secretary during the year has been made possible by their kindly co-operation and assistance and we are pleased at this time to acknowledge our gratitude to them. The lines along which all associations are now working have materially changed from those first marked out to govern their action. They have necessarily become so on account of the changed and constantly changing relations between the consumer and the retailer, the retailer and the jobber, the jobber and the manufacturer. Each being an important factor is alike not subject to elimination from the domain of trade, nor would it be desirable to have them so, were this consummation possible.

THE CENTRAL IDEA OF FUTURE GROWTH

and usefulness will be, we believe, the assimilation of these varied interests into a more orderly and perfect whole, each having its clearly defined course, which will in no sense infringe upon the rights of the other.

We do not think you can formulate any effective action which does not take into consideration this unity

of interest, that will be in touch with advanced thoughts of the retail Hardware dealers of the State.

THE REFORMS

which have been made possible are so contrary to old established modes of bargain and sale as to be necessarily slow in adoption. There is an educational feature connected with this movement which must precede and leaven the whole prior to its full realization. Our associations can move no faster along these lines than the consensus of an awakened opinion among retailers will induce them by co-operation to make our efforts effective. Our work must not only be productive of results to the retailer, but of such a nature as to leave no room for doubt in his mind that association work is benefiting him. We believe this time has come to our association and that we will enroll at this meeting enough new members to give us the majority of the retail dealers of this State.

ASSOCIATION AND ORGANIZATION

are the only lines which the retail dealers have at their command to use in bringing about their equal right to be heard and respected as a body in this struggle for



H. S. CLEVELAND, Vice-President.

their trade rights. They should appreciate the power they hold and the vital necessity of close business affiliation.

They now control over 86 per cent. of the consumers' trade within the State—the department store, catalogue and supply houses have the remaining 14 per cent. Their united capital invested is nearly double the combined capitalization of the Hardware jobbers and manufacturers of the State. We believe they can wisely use this power under the direction of their State association that will enable them to retain the prestige already gained and open up new ways and means to benefit themselves.

FEELING TOWARD ASSOCIATION.

There is a marked change of feeling toward our association among dealers. They are beginning to appreciate that we cannot accomplish many desired reforms at once, which will later on surely come to us by persistent labor and constant effort, and are now willing to assist us. Every dealer joining adds one firm more to make our association stronger. This statement is self evident, but our duty demands its reiteration at this time. We want you to remember it—if not a member, carry it home with you; wrestle with it; you will find that it will not down, but very soon conviction to its truth will dawn upon you and straightway make you a member.

OUTSIDE THE ASSOCIATION.

Take home with you the other thought of where you stand if you are outside of the association. It seems to us almost beyond belief that there is any dealer within the State who should not be with us. The time is not far distant when dealers who are not

members will surely be left in the background in this struggle for trade supremacy. You need and must have the protection of your State association. We have had during the year at least a dozen calls from traveling men entering the State to solicit trade. They have invariably asked for our list of members and assured us that it was not their intention to sell outside. As one of them told us, "We know that with any one of your members our goods will not be misrepresented to effect a sale, nor will they be sold at cost to meet competition."

The secretary's report was adopted on formal motion.

Treasurer's Report.

Treasurer Evenson read his report, showing receipts \$1069.09 and expenditures \$961.02, leaving a balance on hand \$108.07.

Auditing Committee.

C. F. Ladner moved that an auditing committee be appointed, which was adopted. The president appointed the following: C. F. Ladner, St. Cloud; A. Mengh, Princeton; Geo. F. Derry, Plainview.

On motion of A. C. Stebbins a telegram of condolence was ordered to be sent to Ex-President James E. O'Brien of Crookston, who was prevented by illness from being present.

THURSDAY MORNING SESSION.

The roll call showed a very large proportion of the members in attendance.

504 Members.

Secretary McCracken stated that he had started out a year ago with the determination to add 100 names to the membership. At the opening of the convention he had been able to secure 80 names. Others had come in since then, and he was pleased to announce that a total of 104 had been added to the list, making a membership of 504 out of 800 dealers in the State handling Hardware as their exclusive line.

Committee on Nominations.

Mr. Stebbins moved that the members from each of the Congressional districts of the State get together and nominate a member from each district to form a committee on nomination of officers. The motion was carried.

A recess was taken to enable the members to confer, after which the Committee on Nomination of Officers was announced, as follows: A. T. Stebbins, Rochester; C. Schroeder, Mankato; John R. S. Cosgrove, Le Sueur; J. C. Nolting, St. Paul; H. S. Cleveland, Minneapolis; C. W. Bouck, Royalton; H. E. Swenson, Lake Park; A. Sitz, New York Mills.

Trouble With Lumber Companies.

C. L. Sulerud of Halsted addressed the convention relative to some of the peculiar conditions affecting the Hardware trade in his locality. It appears that lumber companies carrying Hardware as a side line have been making very low prices on Hardware to help their lumber trade, thus seriously injuring the local Hardware dealers, who asked if the association could not assist them to find some way to remedy the trouble. On motion of J. F. McGuire of St. Paul the matter was referred to the Committee on Resolutions.

Hardware as a Side Line.

T. H. Caley of Princeton made some remarks relative to merchants in other branches of trade who use Hardware as a side line to the detriment of regular Hardware dealers. His remarks were forcible and were keenly appreciated.

Election of Officers.

Mr. Schroeder, for the Committee on Nominations, reported the following list:

PRESIDENT, W. H. Tomlinson, Le Sueur.
VICE-PRESIDENT, H. S. Cleveland, Minneapolis.
EXECUTIVE COMMITTEE: Three years, P. J. McGuire, St. Paul; A. T. Stebbins, Rochester; Charles F. Ladner, St. Cloud, succeeding C. F. Stremel, Minneapolis; S. R. Nelson, Owatonna, and C. F. Ladner.

The secretary and treasurer are appointed by the Executive Committee, which accounts for the omission of these offices from the list.

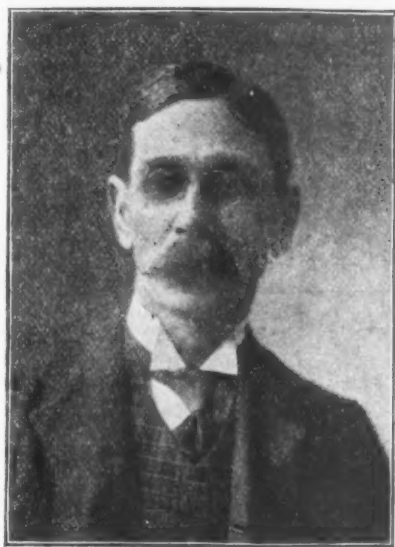
On motion of P. L. Norman of Monticello the committee's report was adopted and the secretary was instructed to cast one ballot for the nominees, who were declared elected.

President Tomlinson thanked the convention for the honor of a re-election.

The Department Store Question.

J. F. McGuire of St. Paul gave an interesting talk on the department store question, giving his method of handling such competition. He has for years been located in the immediate vicinity of three large department stores, but has been able to maintain his trade and increase it. He recommended to the members the great importance of buying better, so as to have a larger margin to use in fighting this competition. Dealers need to pay more attention to the matter of buying.

T. H. Caley of Princeton discussed the subject from the standpoint of the country dealer. He claimed that



THOS. MCCRACKEN, Secretary.

the true way in which to protect the trade was to endeavor to have standard goods withheld by Hardware manufacturers from the department stores.

The Lumber Grievance Again.

C. L. Sulerud of Halsted moved that a committee of five be appointed to meet with himself and H. Hansen to consider the grievance with the lumber trade and report to the convention to-day. The motion was carried, and the chair appointed Messrs. Caley of Princeton, Barto of Long Prairie, Casey of Jordan, Van Norman of Montevideo and Nelson of Red Wing.

Resolutions.

Chairman Stebbins of the Committee on Resolutions reported the following:

Whereas, His Excellency, Governor S. R. Van Sant, is honestly endeavoring to enforce the laws of Minnesota regarding the consolidation of competing lines of railroad; and

Whereas, We believe that such consolidations would be detrimental to the best interests of the trade in the State as well as throughout the entire country; now, therefore, be it

Resolved, That we heartily indorse the action of the Governor in the matter and express the hope that the officers having the case in charge may be successful in preventing the consummation of the railroad merger.

Resolved, That we deprecate the practice of manufacturers and Hardware jobbers selling Builders' Hardware and Builders' Supplies generally direct to contractors, thereby ignoring the local dealer, and that we hereby request the officers of this association and the National Retail Hardware Dealers' Association to use their best endeavors to remedy this evil, believing that it can be accomplished through conferences with the manufacturers of Builders' Hardware and the officers of the National Jobbers' Association.

Department Store Competition.

Mr. Caley moved that the convention proceed to consider the department store question. Carried.

Geo. M. Evenson of St. Peter said that if department stores advertised honestly their competition could be met. The association should take a more aggressive stand relative to manufacturers who sell Hardware to these stores.

Co-operative Buying.

H. O. Roberts of Minneapolis made a strong plea for the adoption of a system of syndicate buying for the purpose of enabling the members of the association to secure goods at lower prices, and thus strengthen them in this contest with department stores.

Mr. Van Norman added to the interest of the discussion by very spicy remarks.

Mr. McGuire read the result of some inquiries among dealers as to the prices each asks on standard goods, and the variations in the prices were surprising. He said this seemed a small matter, but it was important. A consumer making purchases at different stores gets some peculiar ideas regarding the different merchants. They should get together a little closer.

Mr. Roberts moved that a committee of three be appointed to consider and report on syndicate buying. The motion was adopted and the chair appointed Messrs. Roberts of Minneapolis, Cosgrove of Le Sueur and Nelson of Red Wing.

Auditing Committee Report.

Mr. Ladner reported that the Auditing Committee had examined the books of the secretary and treasurer, and had found them correct. The report was adopted.

THURSDAY AFTERNOON SESSION.

A. C. Hatch, president of the Retail Hardware Dealers' Mutual Fire Insurance Company, read his report for the year, as follows:

Report on Insurance.

A few days since I received the official programme from Secretary McCracken and discovered that he had put me down for a talk on insurance. Of course he supposed that I was always loaded on that subject, but it placed me in a position somewhat of that of a very good and devout man who was a missionary in one of the Pacific islands some years ago. He received an invitation to a banquet from the cannibal king of the island. He was highly pleased and flattered thereby until he discovered that he himself was included in the bill of fare. Then it was different.

When three years ago it was my privilege to make the first move in the line of our mutual fire insurance I hoped for better results than we have attained in that time. We are now carrying but little over \$500,000 in the State, which, of course, is quite an amount, but considering the value of the retail Hardware stocks in the State it is comparatively small. We hope, however, that the record we have made will remove all doubts from the minds of those who are not now with us, and that they will no longer stand in their own light but will join with us.

MORAL HAZARD.

A short time before our company were organized I listened to a conversation between two prominent insurance men. They claimed that if the moral hazard was eliminated the board rule could be cut down more than one-half. I know that they were right, for too often the friction of a \$5000 policy against a \$3000 stock originates fires.

I have looked up fire insurance losses in this State of Hardware dealers for the past five years and find no suspicious fires. All our losses since we started are above suspicion. Most of our losses have been in North Dakota, and in each case the whole town burned. Our experience would suggest that the motto of most North Dakota towns should be "United we stand, united we burn." I do not claim that there is no moral hazard in insuring Hardware dealers, for they are all human and very much like other men. We hear of men, helpless

and despondent, committing suicide that their families may get the benefit of their life insurance. Men may be so placed that they will commit moral and commercial suicide by setting fire to their property, but such cases are rare.

OUR POLICY

has been to eliminate the moral hazard, and we have been in a great measure successful. Every applicant has been looked up, and if the record is not right he is rejected, and policies have been canceled for the same reason.

Our secretary, Mr. McCracken, has handled our affairs in a very able manner. I am confident that but for his vigilance we would have many bad risks. His prompt and energetic action in the recent adjustment in North Dakota saved the company \$750, for which he is certainly entitled to great credit.

OUR SECRETARY'S REPORT

shows that the amount paid for losses and expenses amounted to about 40 per cent; 50 per cent. went into the reserve, as required by law, and 10 per cent. in permanent reserve or surplus. Our intention at first was only to ask a policy holder, on renewal, only the per cent. actually paid out for losses and expenses, but we found the State law compelled us to have on hand 50 per cent. of our deposits previous. Therefore we could only allow the policy holders 25 per cent. I am confident, however, that next December the company will have a reserve that will enable it to carry out its first intentions.

Most Hardware dealers, and especially those of us who have worked at the bench, remember the old saying among tinnerns that there are only a few dead tinnerns not in heaven, and those who are in the hot place are those who tried to solder with a cold copper. I think that as many Hardware dealers were formerly tinnerns this saying will apply to the trade generally—that is, if we keep our coppers hot by rustling for trade, by being loyal to our association, and by taking out and retaining a policy in our Mutual Insurance Company.

FINANCIAL CONDITION.

Following is the financial condition of the company:

Amount of funds on hand December 31, 1901.....	\$11,196.03
Disbursements—Losses, \$2,344.98; rent, \$60.80; postage, \$122.50; expense, \$575.67; telegrams, \$4.35; exchange, \$21.17; salary, \$600; taxes, \$147.13; fixtures, \$64.35.....	4,114.25
Being a net gain for the year of.....	\$7,081.78
We have written during the year.....	\$851,475.00
Loss amount insured.....	316,400.00
Leaving a balance of insurance at risk of.....	\$535,075.00
The 50 per cent. premium reserve on this amount is.....	\$5,282.73
Average rate on policies written in 1900.....	\$2.20
Average rate on policies written in 1901.....	1.90
Treasurer holds interest bearing certificates of deposit to the amount of.....	\$11,000.00
We have cash on hand to the amount of.....	2,196.31
Making a total of.....	\$13,196.31
Our expenses during the year 1900 were.....	\$2,196.61
Our expenses during the year 1901 were.....	1,769.27
Being a saving to the company of.....	\$437.34

Secretary McCracken supplemented the report by stating that in January \$50,000 insurance had been written and \$1300 received for premiums, and up to February 22 \$87,000 insurance had been written and \$2700 received for premiums, with enough applications on hand to be written up to run February over \$100,000, which would make it the largest month the company have ever had. No losses have been suffered in these months. It is expected that March will be still heavier.

P. W. Lyon of Janney, Semple, Hill & Co. of Minneapolis, addressed the convention on

The Three Essentials.

The address, which was a fine oratorical effort, and was received with hearty applause, is as follows:

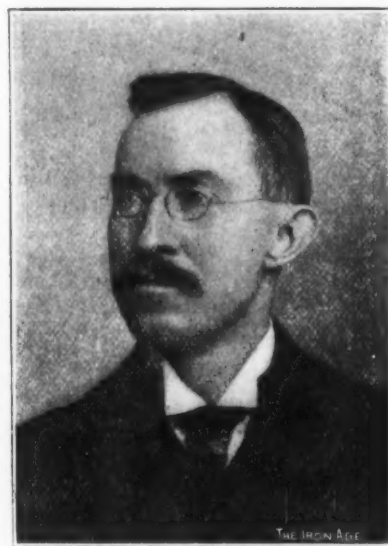
It affords me great pleasure to stand here and look down into the faces of men who represent the backbone and sinews of an organization which has already proved itself a potent factor in accomplishing the downfall of one great enemy to the common good, and permit me to express the hope that having engaged in a righteous warfare upon an unscrupulous foe, the guns may never

be silenced until every stronghold of trade piracy is demolished, and when eventually the smoke of battle has cleared away the legitimate dealer may find himself in undisputed possession of the battle ground of commerce.

I have been requested to say a few words this afternoon on a subject assigned by your worthy secretary, Mr. McCracken—namely: "Three Essentials"—the manufacturer, the jobber and the retailer, in their relations to one another.

Now the only fact which lends importance to a brief discussion of the subject at this time may be, that recently in a sister State an organization similar to your own has seriously considered the plan of eliminating the jobber from the commercial arena, and, so to speak, build a cut off between the retailer and the manufacturer, leaving the poor jobber high and dry on the rocks of disaster.

Some Eastern papers have also taken the matter up, having published articles on the subject designed to prove beyond peradventure of a doubt that such a plan might be carried out to a successful issue. But after looking over the ground carefully I am more thoroughly



P. W. LYON.

convinced than ever that the manufacturer, the jobber and the retailer constitute a Trinity equally necessary to the most satisfactory transaction of trade and equally vital as organs in the commercial body. Now I am not here to represent the jobber, but rather to consider the subject on a broader basis. At the outset permit me to lay down the following propositions, which seem to me important in the consideration of the subject:

1. That the manufacturer is obviously indispensable to the transaction of trade.
2. The manufacturer cannot ignore the jobber in an attempt to dispose of his product direct to the retailer.
3. The jobber is a vital necessity to both manufacturer and retailer.
4. The jobber will never find it profitable to cut out the retailer in his effort to transact business direct with the consumer.
5. The retailer is essential to the very life of trade, and he in turn cannot avoid the jobber in his effort to save the jobber's profit by purchasing direct from the manufacturer. All three are links in a mighty chain. Break any one of them and you destroy a magnificent commercial system which has centuries of success behind it, and generations to come will find it an indispensable tooth in the great gear wheels of material progress.

THE MANUFACTURER.

The manufacturer is the genesis of our commercial life. From him emanate the finished products which form the basis of our trade transactions, like the vital organs of man's being, which take the food and convert it into blood, sending it out through the arteries of the

body, supplying life and action to every member; so the manufacturer appropriates the raw material; the iron from the mine; the timber from the forest; the thought of man's mind, and the strength of his muscle; and by the subtle process of manufacture brings forth the merchandise of commerce and sends it down through the great arteries of our business life, furnishing thereby the very life blood to our commercial body.

Let us suppose, for the sake of argument, however, that in order to increase dividends the manufacturer conceives the idea of disposing of his goods direct to the retail trade, with a view of saving the jobbers' profit, what questions face him demanding a solution?

The first is, will it net him larger returns to market his goods direct than under the time honored jobbing system?

2. Will the service rendered on direct shipments be satisfactory to the retail public?

3. A most vital question, at least so far as the retailer is concerned, is how much, if any, of the profit thus saved by the manufacturer will go to the dealer in the shape of a reduction in prices. And I am going to leave this last little problem for you to figure out at your leisure, for if there ever was an age when one set of men were willing, nay anxious, to give away any portion of their profit to another set of men, this is it.

It will be seen at a glance that in order for the manufacturer to render satisfactory service to the purchasing public in the absence of the jobber he must, of necessity, maintain a sufficient force of agents in the field and a line of distributing warehouses at strategical points in the territory, otherwise what will become of your rush and telegram orders which come to Twin City jobbers daily. Urgent needs must have a quick response. If you become suddenly ill you cannot send to New York for a physician, but are most likely to call the neighborhood doctor, and the retail public will never transact its business satisfactorily on factory shipments.

PROFITS IN SELLING DIRECT.

First, then, will it swell the manufacturer's profits to adopt the policy of selling direct to the retailer? My answer is: "It will not." No manufacturer or association of manufacturers, comprising, say, five or six of the leading lines, could successfully maintain such distributing warehouses with the necessary quota of salesmen and clerks, owing to the excessive cost of handling the goods under such a method. This will appear quite plain to you when you stop to consider that the stock of a jobbing house comprehends the product of several hundred manufacturing establishments, each in itself supplying many lines of goods, and each line pays its pro rata of the expense of transacting the business, so that under one roof with one force of clerks and one expense account the business is executed. No one line is heavily taxed, but all contribute to make up the great budget of the jobber's expense, thus making the percentage of cost to handle the goods under the jobbing methods much less than under any manufacturer's distributing scheme, where one-half dozen lines at most would of necessity bear the entire burden, and the small manufacturer who could not possibly enter into such an arrangement must ship direct in small lots, thus causing the utmost discomfort to the country merchant.

THE QUESTION OF SATISFACTORY SERVICE

is not the only vital point to be considered before you relegate the jobber to the scrap pile of antiquity. You must get your pencil and do a little careful figuring on some other matters, for instance: You must first ascertain the freight rate on small lots from New York, Pittsburgh, St. Louis, Cincinnati and other manufacturing centers to your town, and deduct from this the car lot rate on the same commodities to jobbing points, like Minneapolis, St. Paul and Duluth, plus the local rate to the same point, and make up your mind that Jones doesn't pay the difference in freight, but you do.

Another important matter that may concern you a little is the fact that under the factory shipment plan you will doubtless find it necessary to increase your stock at least 25 per cent., for it is now possible on rush orders to sort up in three days at most by mailing your memorandum to your local jobber, and on telegraph and

telephone orders your goods will be on your depot platform the next day, while factory shipments would be at least two weeks on the road. Again, this excess of capital tied up in the business would earn you absolutely nothing when it might be employed on outside investments at a satisfactory profit.

Therefore, with a possible 50 per cent. advance in freight added to the first cost of goods and a certain 25 per cent. at least of dead capital invested in your business, the proposition certainly should have no attractive features to the retail dealer, no matter how much the scheme might commend itself as a money maker to the manufacturers.

CREDIT.

Another question in this connection which awaits solution by the retailer is the matter of credit. So long as our commercial structure is builded largely on the foundation of credit, so long will man need accommodation from time to time to tide him over the sand bars of failure, and a friend in need who will reach down a helping hand betimes and pull him out of the slough of commercial despondency.

To-day any straightforward, honest retailer in the Northwest who will go to his jobber in a time of financial stress and lay his case squarely before him, if there is any merit in the matter at all, can get the necessary help to weather the storm and enable him to sail again under fairer skies in the peaceful harbor of financial safety.

Suppose, however, you cut out the jobber, as some have suggested, and you do business with a resident agent, representing, as he may, several of the leading manufacturers; a man no matter how much he might personally desire to assist you, nevertheless cannot act on his own responsibility in important credit matters, but must refer your case to the home office for settlement, where it will be passed upon, not with a view of helping you over a difficult situation, but the question will be simply this: How can we get our money, and how can we get it quick.

Cut out the jobbing business and you impoverish your State Treasury to the extent of moneys paid in on taxable properties owned by these corporations within their jurisdiction.

Cut out the jobber and the inconvenience and delay in correspondence and the adjustment of claims and errors would alone be a very serious matter.

Cut out the jobber and where will the traveler be, with his friendly advice as to market conditions on staples? Many a dealer new at the business has been piloted over the dangerous rocks of failure by the clear cut advice and keen business foresight exercised in behalf of the dealer, in whom he had taken a particular interest.

These are but a few of the reasons which appear on the surface, showing why the manufacturer and retailer combined cannot side track the jobber without serious disturbance to the business atmosphere. But as the mountain stream empties itself into the channel of the mighty river which flows onward to the sea, so must the manufacturer ever send his product out on the high seas of commerce through the timeworn channels of the great jobbing centers.

JOBBER'S RELATIONS WITH RETAILER AND CONSUMER.

Now let us turn our attention for a moment to the jobber in his relations to the retailer and the consumer. The question is often asked: May not the time come when large jobbing houses will be led to adopt the methods now employed by catalogue houses, at least so far as selling to the consumer direct is concerned, and instead of employing a large force of travelers and other expensive agencies, which are now deemed so necessary to the proper prosecution of the jobbers' work; be led to draw the coupling pins on the expense account, and running right by the old town of Retailerville, never set a brake until he pulls in at the end of the line at the new town of Consumerville?

But before the jobber casts aside his old friend, the retailer, as a useless link in the chain of events, he must himself make some careful calculations. The first question to be solved is the same as that which the manu-

facturer must work out in his direct relations with the retailer—namely:

Will it pay larger dividends?

Is it a safe proposition?

And what are the objections to be overcome in its realization?

The first stubborn fact that blocks the track is, that in order to consummate such a scheme successfully it would be necessary to throw overboard the time honored credit system now employed as between the jobber and the retailer, and in its place must be established the same method now pursued by the catalogue houses—namely, that of doing business on a strictly cash basis. And let me say that the fond hope of the realization of the scheme exists solely in the theoretical brain of the man who has never had the sweet experience of closing a long past due account into a slow note, or has never had a vital connection with a crop failure.

It is a very difficult matter for the jobber to keep in touch, even in a nominal way, with the financial condition of the several thousand retailers who make up his patronage throughout the Northwest, but multiply this number by the average number of customers tributary to the ordinary retail dealer, and you can get some conception of the serious proposition which would face the jobber in doing business direct with the consumer on a credit basis. But you say the catalogue house operates successfully on a cash basis direct with the consumer; why may not the jobber be tempted to do this also? The answer is simply this: That the amount of goods furnished to Northwest consumers by catalogue houses, as compared to the enormous proportion handled through jobbing concerns, is not worth consideration here, and let me say further that if these same catalogue houses were compelled to supply the entire demand, within a year they would either be out of action or trying to do business on a credit basis; or, what is infinitely better still, would be utilizing our old time friends, the retail merchants, as a medium of distribution.

But if this was not sufficient cause to keep the jobber in his proper sphere of action there is yet another sufficiently potent. The account of the country merchant with his jobber is usually of such an amount as to warrant legal action in the collection of the same when the painful necessity arises, but in doing business with the consumer direct no one account would be large enough or of sufficient importance to justify such action, nor would such a course be advisable against his client. You retailers can take crop, live stock, or implement security on these small accounts, but no jobber could pursue such a method, where in many cases he is located hundreds of miles remote from these small debtors.

The Minnesota Retail Hardware Association owes its birth not to any particular set of trade abuses chargeable to the legitimate jobbers of the Northwest, but the potent influence which called it into being was, I take it, the unscrupulous encroachment of the catalogue house on the inalienable rights of the retail merchants throughout the country. Speaking from the standpoint of one who has been in a position to judge fairly for a number of years, let me say it is my judgment that the amount in dollars and cents of the entire sales to private parties by legitimate jobbers in this section of the country prior to the origin of your association, sales made in many cases under misrepresentation by the purchaser, could never for one moment have justified the great outlay of both money and time consumed in its organization.

Another reason why the jobber cannot go direct to the consumer for his patronage is the fact that not a little of the business transactions of the country merchant is on a basis of an exchange of commodities. Butter, eggs, cattle and produce of all kinds are exchanged for the merchandise carried by the retailer, while the jobber in his direct dealings with the consumer would be compelled to ask cash or bankable notes in settlement.

ABSOLUTE NECESSITY.

There is a bond that unites the jobber and the retailer stronger by far than ties of affection; it is the bond of absolute necessity. Bound together by common interests they can never be divorced, so long as dependence

of man upon man plays such a vital part in the execution of the business of this world.

The manufacturer supplies the merchandise of trade to the jobber. The jobber in turn maintains great depots of supplies in the very heart of the territory tributary to him, thus facilitating the distribution of goods to the dealer, who in turn performs the same function to the consumer; in fact, the retailer is simply a pocket edition of the jobber himself. The jobber in a measure is the retail merchant's banker. He has a vital interest in his success. That success brings a smile of satisfaction to the faces of both, and his failure beclouds their brows alike, and may the time never come when the bond of sympathy and common interest which now binds them so firmly together is broken, but shoulder to shoulder may they go forth armed with a firm faith in one another, and in the everlasting truth and justice of the great God above, to conquer every foe that stands in the way of a legitimate profit on a legitimate business.

TRIBUTE TO THE RETAIL MERCHANT.

But let me not close without paying tribute to whom tribute is due. The manufacturer and the jobber need no eulogy. Surrounded, as a rule, by every comfort which life in a large city can bestow and wealth supply, knowing not what hardship and sacrifice mean in the truest sense, but let me to-day sound the praises of the man who has the courage to cut loose from the blessings which city life affords to himself and family and faces squarely up to the hardships and privations of frontier life, and armed alone with the broad axe of faith in himself, and an unflinching purpose, hews his way through every difficulty to financial success. Men who stand on the skirmish line of civilization, fighting at all times in the vanguard of commercial life, assailed by every conceivable foe, lack of moisture, too much rain, too many bugs, blighting frost and withering heat, now fighting the common foe, "the catalogue house," again threatened by depression in the values of farm production, never sure of a harvest at any time, but, like the sturdy oak, they stand defying the storms of life, and with a courage born of hardship and suffering pluck success out of the very jaws of defeat.

Permit me, in the name of the house I have the honor to represent, to extend to you in common with our esteemed St. Paul friends, a most hearty welcome, and to express the hope that the utmost success may attend the plans which may be devised, and may Divine guidance lead you in all your deliberations at this session of the Minnesota Retail Hardware Dealers' Association.

And when this pleasant gathering will have dispersed after we have taken each other by the hand in friendly greeting, may we take up again the great burden of life's cares and duties with an honest heart and a righteous purpose, so that when the struggle is over and we all stand side by side before the great tribunal, manufacturer, jobber and retailer, it will be with the firm conviction that having dealt honorably with one another and with the world at large, ours will be the reward of duty faithfully done.

The American Grass Twine Company invited the members to visit their great factory in St. Paul. The invitation was accepted with thanks, and announcement was made that the factory would be visited on Friday afternoon.

M. De Motte of St. Paul read an interesting paper entitled "How to Write an Advertisement," which we reserve until our next issue.

On motion of H. S. Cleveland of Minneapolis a vote of thanks was given Messrs. Lyon and De Motte.

Miscellaneous Business.

A telegram was read from ex-President O'Brien thanking the convention for its message of good will and good wishes, and hoping that success may attend all the efforts of the association.

Mr. Caley of the special committee appointed to consider the lumber trade grievance made a report recommending that the manufacturers or wholesale houses selling Hardware to these lumber dealers be considered not acting fairly with the regular Hardware trade. The report was adopted.

Chairman Heins of the Committee on Grievances

stated that the only matter before the committee was in regard to prison made Twine.

Join the National Association.

Mr. Ladner reported that the committee appointed last year to consider the advisability of joining the National Association had at first felt that it would be inadvisable, because of the great expense. In view of the growth of the national movement, however, they now feel that Minnesota should join the national organization, and the means are available for paying the dues if the annual banquet is discontinued. They therefore recommended favorable action.

Mr. Hatch moved that the report be adopted, and the motion was carried unanimously.

Mr. Stebbins of the Committee on Resolutions offered the following, which was unanimously adopted:

Resolved, That it is the sense of this association that the time has arrived for us to join hands with the National Retail Hardware Dealers' Association, and the Executive Committee is hereby authorized to take the necessary steps to have the Minnesota Retail Hardware Association enrolled as a member of the National Association.

The Janesville Hay Tool Company.

A motion was adopted permitting the Janesville Hay Tool Company's representative to address the convention. Hugh O'Heir appeared on the platform and denied emphatically that a Chicago catalogue house owned the company, as had been charged. He also stated that his company made no goods for the catalogue house. The denial was explicit and emphatic. The opportunity to make this statement had been sought because the name of the company had for some time been associated with the Chicago catalogue house throughout Minnesota to their great injury. Mr. O'Heir answered a number of direct questions with frankness, and the applause which followed the conclusion of his statement showed that the convention believed that his company had been vindicated.

Executive Session.

The convention went into executive session and a lively discussion ensued relative to trade practices which interfered with the interests of retail dealers.

The New Treasurer.

Announcement was made that the Executive Committee had elected W. A. Barto of Long Prairie treasurer for the ensuing year.

General Business

A motion was passed authorizing the Executive Committee and secretary to print a list of manufacturers and jobbers regarded as favorable to the association.

Julius Schmidt of Wabash stated that he had been requested to bring before the association the fact that many Hardware dealers in Western Wisconsin desired to join the Minnesota Association, because they were so far from the regular meeting place of the Wisconsin Association as to make it inconvenient for them to attend the conventions in that State. He therefore moved that this be permitted in case the Wisconsin Association did not object. An amendment was made to include dealers from other States if they desired membership. The motion as amended was adopted.

FRIDAY MORNING SESSION.

The Question Box was opened and several queries were found, which led to considerable discussion, but as they related to insurance and other topics of purely local interest, they are omitted.

G. L. Nye of the Minnesota Stove Company was invited to address the convention. He first touched on the importance of marking goods high enough so as to be sure of including all fixed charges, then adverted to co-operative buying, which he approved if a practical method could be devised for the purpose.

Mr. McGuire presented the following resolution, which was adopted:

Resolved, That the Hardware traveling men of Minnesota are hereby permitted and requested to become honorary members of the Minnesota Retail Hardware Association.

Relations with Jobbers.

Mr. Stebbins stated that in executive session a motion had been adopted rescinding the action of the Executive Committee taken 18 months since, permitting the jobbers of the State to sell to the department stores of the three large cities. Believing that jobbers should have due notice of such action, so that they could arrange their business accordingly, he moved that the requirement be not put in force for six months.

The question was discussed by Messrs. Caley, Cleveland, McGuire and Horace M. Hill of Janney, Semple, Hill & Co. Mr. Hill said that the department store had come to stay and that he believed an injustice would be done to jobbers if they were compelled to discontinue to sell to department stores. The jobbers had some of this trade, but it was far less than the trade done by these stores direct with manufacturers.

The motion was carried.

H. L. Chaffee of the Simmons Hardware Company responded to an invitation from the president to the traveling men. He made a very interesting presentation of his company's attitude toward the retail Hardware dealer. All are thinking of how to increase their sales. He claimed that this was to be done by enlarging the variety of stock carried, thus increasing business in other and perhaps more profitable lines than staple goods. Jobbers who are able to do this benefit the dealer.

A. S. Dean of the Michigan Stove Company commended the association for its sturdy position as an anti-department store and anti-department catalogue house organization, urging the warfare to be continued on this line.

W. W. Spence of the Spence Specialty Company, St. Paul, said that in traveling through the State he had noticed that the towns having good up to date Hardware stores did not afford good ground for department stores to flourish.

R. A. Kirk of Farwell, Ozmun, Kirk & Co., praised the conservative course followed by the association. He was pleased that the retail dealers' associations and the National Hardware Association, composed of jobbers, are co-operating. By working together they can do much to remedy the evils from which the Hardware trade has been suffering. Substantial progress has already been made. The dealers of the Northwest are now suffering less from catalogue and supply house competition than for many years.

Messrs. Ladner and J. P. Watson discussed the relations with jobbers and both expressed a strong desire that the State jobbers should be treated fairly in any action taken by the association against those who sell to department stores. Mr. Caley favored aggressive action, urging that the secretary be directed to notify the members of such houses as sell to department stores.

Minneapolis Next Year.

On motion of H. S. Cleveland it was decided to hold the next annual meeting in Minneapolis.

The president declared the convention adjourned, *sine die*.

Meeting of Executive Committee.

The Executive Committee met on Friday afternoon to finish the work laid out by the convention.

W. H. Tomlinson of Le Sueur and Chas. F. Ladner of St. Cloud were selected as delegates to the National Association, with the privilege of naming a third delegate.

Thomas McCracken of Minneapolis was elected secretary for the ensuing year.

NOTES OF THE CONVENTION.

The convention of this year was the best ever held by the Minnesota Association. They have had what were considered large and very interesting gatherings in past years, but the convention of 1902 establishes a new record. The attendance ran far in excess of that at any previous annual meeting, showing that the interest in association work among retail merchants is increasing instead of diminishing. A gain of over 25 per cent. in the past year in the membership of an association already in the first rank in point of numbers is a remark-

able achievement. It was mainly due to the energetic work of the very capable secretary, Thomas McCracken.

As the association grows larger, the position of president becomes much more important. Few men have the qualities necessary for a successful presiding officer. President W. H. Tomlinson demonstrated his fitness for the position so ably that his fellow members decided to hold on to a good president while they had him, and therefore honored him by a re-election.

The convention met in a hall in the Ryan Building. The hall was well adapted for a meeting of this character, being ample in size and excellently ventilated, and having perfect acoustic qualities. It was, withal, very convenient to the Hotel Ryan, the official headquarters of the association.

The association issued a souvenir programme, which contained the order of exercises, advertisements of manufacturers, jobbers and others identified with the trade, a list of members of the organization, officers of National and State associations and other matters of interest. This programme was very creditably gotten up, and will undoubtedly be preserved by the members as a memento of the occasion.

A pleasing departure from usual experiences at conventions was the untiring care shown by J. F. McGuire, chairman of the Press Committee, in seeing that the press representatives were supplied with every requisite for their comfort. Mr. McGuire evidently believed that a press committee had not been appointed for ornamental or perfunctory purposes, but to do something, and he did it.

In attendance at the convention was a very enterprising retail merchant from North Dakota, Martin Jacobson, who conducts a store at Minot. The manner in which merchants are regarding the prospects of trade for the coming spring throughout the great Northwest is very forcibly indicated by Mr. Jacobson's large purchases. Having had experience for several years in the shortage of goods just when needed, he determined this season to lay in a sufficient stock to put himself in a position to serve his customers promptly. He has therefore bought a sufficient quantity of Hardware, Paints, Oils, Harness and Farm Implements to fill 20 cars. These goods came from different localities, were collected at St. Paul and were shipped from that point on March 3 in one solid train.

The Banquet.

It has been the custom of the association to hold an annual banquet, and this was one of the attractive features of the recent convention. The banquet was held on Thursday evening in the large dining room of the Hotel Ryan. The number of plates laid was fully 300. The room presented a beautiful appearance, the tables being arranged in the form of a gridiron, the toastmaster's table extending along the head. A fine orchestra, composed of ladies, furnished instrumental music while the menu was being discussed. Two professional entertainers enlivened the evening with song and story. After the coffee and cigars, speech making began under the direction of J. F. McGuire, as toastmaster. Mr. McGuire proved to be admirably fitted for this exacting position, introducing each speaker in felicitous phrases. The speakers were heard in the following order: President W. H. Tomlinson, who spoke of the opportunity for social communion afforded by membership in the association; Charles F. Ladner, father of the association, who proved that he could tell a story very well; W. A. Barto, the new treasurer, who demonstrated that he could talk readily; R. A. Kirk, president of the National Hardware Association, who extended the greeting of his organization to the retail merchants of Minnesota; Geo. W. Cope of *The Iron Age*, who spoke of the extent of the Hardware trade in Minnesota; H. S. Cleveland, who spoke on the relations of traveling men and retail merchants; A. T. Stebbins, who discoursed eloquently of the resources of Minnesota; H. O. Spencer, who spoke entertainingly without referring to Door Hangers or Grindstones; H. P. Hall of the *St. Paul Trade Journal*, who lauded the standing of Minnesota among the other States at the Buffalo Exposition and elsewhere, and Jesse A. Gregg, who spoke for St. Paul

jobbing interests. The remarks made by Mr. Cleveland, who discussed the traveling man, are as follows:

In my opinion the world of commerce has progressed more rapidly in the last quarter of a century under the helping hand of the commercial traveler than in any 50 years before his advent.

The survival of the fittest applies to traveling men as well as business men. The majority of them are from the highest walks of business life and represent the very best type of men; sincere, hard working, generous good fellows, always looking to do a brother in distress a good turn.

The relationship between the retailer and the "Knight of the Grip" should necessarily be pleasant. Wholesale houses expect to employ good men for salesmen. We, the buyers, must appreciate that if we expect to retain the confidence and respect of the traveling salesmen we must be fair and honorable with them.

We have come to a period in the great commercial world when the loss of not having the latest daily market reports deprives us of many sales. We move rapidly in commercialism; a thing of to-day is a thing of the past to-morrow. When you lose the business your competitor gets it.

Where does the retailer get his information? He must keep posted to stay in the race. He does not get this information from the manufacturer, for he does little or no business with him; and not from the jobbers, for they publish changes for their salesmen only. Trade papers many times are inaccurate or delayed. Where, then, do we get this information? From the "Knight of the Grip," our friend.

I appeal to you, brother retailers, be fair with this man. He is a worthy champion of our cause; always with a smile and hearty handshake in good times and poor. He has a good story to tell, and usually does his best to make right prices. Don't waste his time and impose upon his good nature by some misleading statement in regard to prices, or terms on goods. He is constantly on the firing line between the house and the customer, and his lot is not an easy one.

I would suggest to traveling men that the buyer deserves much consideration at their hands, and in the specialty line don't try to overload us, especially when you first show that new article, made expressly for our locality, which you expect to give us the exclusive sale on, when many times your competitor has the same thing with which he is working our neighbor across the street.

The merchant and the traveling man should both observe the Golden Rule, and we would then work more in harmony. Help the retailer to keep well assorted, but not overstocked, in the staple selling goods. Don't feel offended if we cannot give you our exclusive business. The other fellow who calls on us has a family and must live, too.

The evolution of combines and trusts may lay the traveling man on the shelf, but down the ages his labor in the field of commercialism will bear golden fruit.

Exhibits and Souvenirs.

Numerous exhibits were made in the parlors of the Hotel Ryan. The exhibits, however, were not confined to that hotel, displays being made at other places in the city. In the subjoined allusions to these displays it is to be observed that all were made in the hotel named except as specifically stated.

J. D. Warren Mfg. Company, Chicago, displayed a very large number of photographs showing the styles of Shelving and Cabinets which they manufacture for the special use of Hardware dealers. The photographs included views of Hardware stores fitted with these fixtures. J. D. Warren, inventor of the fixtures, was in charge. He distributed cards showing a photograph of Prince Henry of Germany, with the Masonic Temple of Chicago as a background, and an appropriate reference to the company's offices in that building.

Buck's Stove & Range Company, St. Louis, made an exhibit consisting of Radiant High Grade Art Base Burners, Steel Ranges, Steel Cooking Stoves and Oak Stoves in the Hotel Ryan. They also had an exhibit of

their Great White Enamel line of Stoves and Ranges in the store at 436 Wabasha avenue. Here they displayed what is claimed to be the largest sample exhibit of Stoves and Ranges in the Twin Cities, comprising over 60 patterns. They distributed neat memorandum books for the use of members of the convention. J. F. Stapleton represented the company.

Hibbard, Spencer, Bartlett & Co., Chicago, made a large display of goods which filled a spacious room. The samples shown comprised Sewing Machines, Shotguns, Hammocks, Bicycles, sets for baseball and other games, Chrysolite Enameled Ware, and Fishing Tackle, consisting of Baits, Hooks, Lines, Reels, Fly Books, &c. They showed a particularly fine line of Sewing Machines, their leaders being the Gold Hibbard and the Bartlett. Frank W. Lynn was in charge, assisted by O. P. Shepardson, E. A. Burke, C. C. Clement and W. J. Moorhead.

Rathbone, Sard & Co., Aurora, Ill., made a fine exhibit of Acorn Stoves and Ranges. Samples were arranged on cloth covered platforms 12 inches high, having the front of the platform beveled, with the name of each Stove placed below it in large letters. The Stoves shown comprised the Art Westminster, a base burner of the highest grade; the Century Steel Range, the New Modern Steel Range, the Rapid Four-Hole Steel Range, the Rival Steel Cook, the Albany Oak, with duplex grate; the Classic High Grade Cast Range and the Ivy Wood Base Burner. A special feature of this exhibit was a number of large charts, hung on the wall, giving diagrams of correct and faulty chimneys. Specimens of Stove Pipes and Chimney Tops were also shown of special designs to secure draft. W. W. Strayer was in charge and distributed stick pins having aluminum acorns attached.

The Detroit Stove Works, Detroit and Chicago, made a good exhibit of the Jewel line. The samples shown consisted of the Domestic, medium grade Steel Range; the Leader, a low priced, first-class Steel Range; the Bridal Steel Cooking Stove and the Crown Jewel, medium grade base burner. J. Allen Hasty was in charge.

The Illinois Wire Company, Chicago, exhibited interesting specimens of their Field and Lawn Fencing. A panel of each was shown nicely arranged on a steel frame. They further exhibited specimens of their Steel Gates and six different patterns of their patent Kilmer Bale Ties. These Ties are made with a perfectly uniform twist, presenting a mechanically handsome appearance. A specimen of the company's Adjustable Fence was also shown. This Fence is made without a rigid joint, so that it adapts itself to any inequality in the ground. Charles E. Bock was in charge and distributed nickel plated paper cutters bearing the company's name.

F. & L. Kahn & Bros., Hamilton, Ohio, exhibited several samples of their Estate line of Stoves and Ranges. These comprised the Metal Estate, Four-Hole Cast Cooking Stove, the Estate Oak and the Umpire Estate Air Tight. The Oak Stoves are highly decorated, having a heavy nickeled canopy overhanging the fire pot instead of the usual small foot rail. The air tights are also handsomely ornamented. W. L. Nesbitt had charge of this exhibit.

The Minnesota Linseed Oil & Paint Company, Minneapolis, made an exhibit of Paints and Brushes. E. T. Jones and O. P. Lambert represented the company, distributing pocket mirrors framed in celluloid and bearing the name and address of the company.

The Round Oak Stove Works, Estate of P. D. Beckwith, Dowagiac, Mich., were represented by J. O. Becraft and G. T. Adams, who occupied a large parlor which was visited by a constant stream of members. They distributed nickel plated Doe-Wah-Jack match boxes and Round Oak stick pins. Mr. Becraft was the recipient of a valuable testimonial from his admiring colleagues among the manufacturers in attendance on the convention, and the testimonial will undoubtedly be preserved among his most highly treasured mementos of convention experiences. It was accompanied by a certificate bearing the names and official designations of those who participated in the expense attached. The

presentation speech was made by H. H. Roberts of *The Iron Age*.

The Reading Hardware Company, Chicago, were represented by W. H. Bennett, who secured a conspicuous parlor, but exhibited no samples of the company's well-known line of Builders' Hardware. The samples seemed to be unnecessary, as the parlor was nevertheless a point of great interest to those attending the convention. Mr. Bennett distributed lead pencils in aluminum cases.

Farwell, Ozmun, Kirk & Co., St. Paul, distributed very neat 12-inch folding pocket rules. The rules bore an advertisement of the company's specialties, calling particular attention to their Cutlery, Bicycles, Mechanics' Tools, Paints and Builders' Hardware.

A. S. Dean of the Michigan Stove Company, Chicago, distributed very neat leather pocketbooks.

E. C. Atkins & Co., Indianapolis, Ind., exhibited a large number of samples of their various styles of Hand Saws and Mechanics' Tools. They were represented by L. H. Rounds and R. B. Nixon, who distributed puzzle souvenirs, which greatly entertained the recipients.

The Spence Specialty Company, St. Paul, manufacturers' agents, representing a large number of lines of Hardware, distributed baby Sad Irons. These Irons were handsomely nickel plated, each being contained in a neat box.

A. D. McGilvra, representing the Rochester Stamping Company and the Robeson Cutlery Company, Rochester, N. Y., made a fine display of Cutlery, consisting of Pocket Knives, Razors, Shears, &c.

The Stowell Mfg. & Foundry Company, South Milwaukee, Wis., exhibited Barn Door Hangers and other specialties. Prominent among the exhibits was one of their new Rex Hinged Barn Door Hangers. L. A. Keller was in charge.

The Charles Smith Company, Chicago, exhibited samples of their Furnaces and Water Heater Attachments. Chas. Smith represented the company.

The Berger Mfg. Company, Canton, Ohio, exhibited a fine display of their Classic Metal Ceilings. The company are leaders in this line and the samples shown represented original designs and varied patterns. Walter E. Voigt was in charge.

W. H. Bliss, representing the Robinson Furnace Company, Chicago, showed a model of the Robinson Tubular Furnace.

The Wilcox Mfg. Company, Aurora, Ill., exhibited samples of the various Hardware specialties which they manufacture. Prominent among these were the ball bearing Grindstones known as the Velox steel frame and the Modern Atlas wooden frame. They also displayed samples of their varied line of Parlor and Barn Door Hangers, Gate Latches and other specialties. The company do their own nickel plating, and the nickeled work shown on the samples was of a high character. H. O. Spencer was in charge, assisted by H. E. Cook.

The Minnesota Stove Company, Shakopee, Minn., were represented by President G. L. Nye, David Meiss and A. E. Mattison. They found no difficulty in exhibiting their Coral line of Stoves and Ranges at stores in the vicinity. The company are building up a good trade in the Northwest. Mr. Nye entertained a theater party on Wednesday evening, showing his broad spirit by including another Stove manufacturer among his guests.

The Roberts Heating & Ventilating Company, Minneapolis, showed the Storm King Furnace of their Floral City line. This is a Furnace having a steel plate body and a steel plate radiator, giving twice the fire travel and nearly double the heating surface of the ordinary Furnace. They also exhibited samples of Furnace Fittings, which they are now manufacturing with special machinery, consisting of Boots, Stacks, &c. The company are Northwestern agents for the Perfect Gem Steam and Hot Water Heaters. Oliver N. Roberts was in charge.

The Lowe Brothers Company, Dayton, Ohio, made a large exhibit of Paints, sample cards and advertising devices for the use of customers. They distributed as souvenirs neat stickpins with the company's tri-

angular flag emblem and match boxes advertising Pratt & Lambert's Varnish. The Twin City Paint Company, Minneapolis, are their Northwestern distributors. Edwin C. McCullough was in charge.

The Simmons Hardware Company, St. Louis, made an exhibit of Guns and Sporting Goods in the Merchants' Hotel. H. L. Chaffee and O. W. Smith were in charge.

The Abram Cox Stove Company, Philadelphia, made a large display of Novelty Stoves and Furnaces at 419 and 421 Jackson street. T. M. Gilfillan represented the company.

The Sherwin-Williams Company, Cleveland, Ohio, made a very impressive exhibit, consisting of numerous samples of Paints and a great display of advertising devices. The company are erecting a building in Minneapolis which will shortly be in readiness for a branch house. J. R. Miller will have charge of it. He represented the company in charge of this exhibit, assisted by O. C. Gerry.

The Baker-Vawter Company, Chicago, displayed samples of their loose leaf account books. Jos. M. Lenihan was in charge.

The following were also observed in attendance on one or more of the sessions of the convention:

R. A. Kirk, F. W. Hurty, Geo. H. Salisbury, George B. Ware, J. P. McLaren, Samuel S. King, G. H. Brown and N. Gelb, of Farwell, Ozum, Kirk & Co., St. Paul.

T. G. Walther, H. B. Gates, G. W. Wolbert, J. C. Henry, J. Greeley, F. H. Young, F. W. Wilcken, W. Minty, D. R. Elliott, W. C. Strayer and E. C. Randall, of C. W. Hackett Hardware Company, St. Paul.

J. A. Gregg, Wm. J. Dean, W. B. Brawley and J. H. Robbers, of Nicols, Dean & Gregg, St. Paul.

L. W. DeVault, G. J. Clefthon, S. A. Clefthon and O. R. Manners, of the Western Supply Company, St. Paul.

H. W. Hill, Platt W. Lyon, Chas. Wagner, D. A. Douglass, A. Gee, C. E. Keyes, R. M. Gray, S. M. Rankin and W. C. Spettswood, of Janney, Semple, Hill & Co., Minneapolis.

S. R. Nelson, E. C. Ollerman and J. P. Holliday, of the Nelson & Bouquet Hardware Company, Minneapolis.

H. D. Final, Charles Harris, W. H. Howe, J. F. Sigloh, F. C. Wilson, Robt. Eveland and W. S. Wood, of the Marshall-Wells Hardware Company, Duluth.

H. J. Wade, of the R. D. Cone Company, Winona, Minn. W. H. Gruenhagen and C. S. Chatfield, Eclipse Stoves and Ranges, Minneapolis.

Samuel C. Silverman, St. Paul Stove Repair Works, St. Paul. H. L. Chaffee, Simmons Hardware Company, St. Louis, Mo. Paul R. Seidel, Geuder & Paeschke Mfg. Company, Milwaukee, Wis.

E. B. Waterman and T. J. Duffy, Jr., Black & Germer, Erie, Pa., and Chicago.

G. M. Gates, Thomas White Stove Company, Quincy, Ill. J. W. Walker, Detroit Stove Works, Detroit and Chicago.

W. C. Sibley, the Malleable Steel Range Company, South Bend, Ind.

S. A. Hunter, Acme White Lead & Color Works, Detroit, Mich.

Hugh O'Heir, Janesville Hay Tool Company, Chicago. Jas. J. Earley, American Grass Twine Company, St. Paul. M. Ledwidge, Follansbee Bros. Company, Pittsburgh, Pa. F. H. Marzolf, Fox, Macon & Northfield Cutlery Company, St. Paul.

B. W. Cavell, the Art Stove Company, Detroit, Mich. A. S. Dean, the Michigan Stove Company, Detroit and Chicago.

W. M. Burns, V. B. Sather, O. F. Berg and W. H. Galbraith of the Pittsburgh Plate Glass Company, Minneapolis.

Sam'l Faulkner, Hoyt Mfg. Company, Milwaukee, Wis. J. M. Mobley, Ney Mfg. Company, Canton, Ohio. Theo. Schemmer, Lalance & Grosjean Mfg. Company, New York.

L. H. Fillatrault, Stearns Paint Mfg. Company, St. Paul. E. A. Lycett, American Steel & Wire Company, Chicago. Charles H. Conner, the Fuller Warren Company, Milwaukee, Wis.

J. W. Torrence, Wm. Resor & Co., Cincinnati. Charles Lindemann, J. P. Lindemann & Sons, Milwaukee, Wis.

A. R. Fuller, Hunt, Helm, Ferris & Co., Harvard, Ill. S. P. Johnston, American Artisan, Chicago. H. W. Hall, Trade Journal, St. Paul. E. C. Pratt and Chas. S. Lindner, Hardware Trade, Minneapolis.

Geo. W. Cope and H. H. Roberts, *The Iron Age*, Chicago.

C. F. Flude has disposed of his Hardware and Stove business in Anthon, Iowa, to Hall & Brunnell.

H. J. Kroll has purchased the Harness part of A. G. Bagge's business in Quimby, Iowa.

PRICE-LISTS, CIRCULARS, &c.

GOODELL-PRATT COMPANY, Greenfield, Mass.: Goodell Automatic Screw Drivers. An illustrated catalogue is devoted to Automatic Interchangeable and Reversible Automatic Screw Drivers. It also shows drill attachments for automatic Screw Drivers.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Illustrated catalogue and price-list, 164 pages, of Repeating Rifles, Carbines and Muskets, Repeating Shot Guns, Single Shot Rifles, Metallic Cartridges, Paper and Brass Shot Shells, Gun Wads, Primers, Loaded Shot Shells, &c. This supersedes all previous issues.

EUREKA REFRIGERATOR COMPANY, Indianapolis, Ind.: High grade Refrigerators. These goods are illustrated in their catalogue in five regular stock sizes and in two different styles. These are opal enamel inside and outside, with oak cases and opal enamel lining.

THE J. D. SMITH FOUNDRY SUPPLY COMPANY, Cleveland, Ohio: Illustrated catalogue relating to Plumbago and Silver Lead, and the mining and refining of the same.

SAWYER BELTING COMPANY, East Cambridge, Mass.: Improved Stitched Canvas Belting. A catalogue describes the Belting fully, and points out the purposes for which it is adapted.

CLARK, HORROCKS & Co., Utica, N. Y.: "Fisherman's Annual," 1902. This book contains 157 pages, illustrating Rods, Lines, Reels, Spoon Bait, Soft Rubber Baits, Floats, Sinkers, Hooks, &c. Special attention is called to the medium priced Split Bamboo Rods. The manufacturers also make any style or pattern of Rods for local trade.

WILLER MFG. COMPANY, Milwaukee, Wis.: Sun Stoppers. A catalogue is devoted to descriptions and illustrations of a large variety of inside Window Blinds.

THE GOHEEN MFG. COMPANY, Canton, Ohio: A catalogue illustrates a number of structures showing the uses to which Carbonizing Coating is put, to protect iron and steel from rust and corrosion.

A. R. WOODYATT & Co., Guelph, Canada: Hardware Specialties. An illustrated catalogue shows the line of goods manufactured by the firm, including Lawn Mowers, Stove Door Handles, Spring and Blind Hinges, Hangers, Coat and Hat Hooks, &c.

THE LUTINK & SONS MFG. COMPANY, Milwaukee, Wis.: Catalogue descriptive of their Adjustable Sliding Door Track and Hanger, designed specially for parlor doors. This Track rests between the partitions, and is not fast at any point. The adjustment is entirely in the track and not in the hanger. The jamb adjustment possessed by this Track causes double doors to be always in perfect line at the center when closed, and plumb with the jambs when open. The catalogue gives full directions for putting up these Hangers and for securing perfect adjustment.

MISCELLANEOUS NOTES.

The Coulter Mfg. Company.

The Coulter Mfg. Company, 1104 Chestnut street, Philadelphia, Pa., are introducing the Coulter, Jr., shoe holder. The appliance consists of an extensible double arm locked in a plate attachment to the wall. The lower part of the arm is arranged to hold a shoe rigidly, so it may be polished, either by means of ordinary blacking and brush, or with paste and a friction cloth. It requires but a moment to secure the shoe in place, and when not in use the arm can be detached from the wall plate.

Bridgeport Mfg. Company.

The Bridgeport Mfg. Company, Bridgeport, Conn., have added to their lines of hardware specialties several articles of utility. One is a fixture for holding a roll of toilet paper suspended by means of a rectangular formed wire and wood roller from a plate to be secured to the wall or wainscoting, and numbered 275. Another is No. 8 jig or band saw, the frame of which is formed of one piece of wire, with a slender saw for wood fret work or similar purpose. Still another is a wood han-

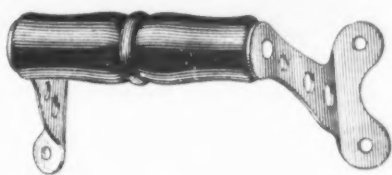
dled wall scraper No. 125. A fourth article is what they call the Union screw driver, having an elongated wire handle. The last of this group is the Daisy paper clip.

Milwaukee Wood Preserving Company.

The Milwaukee Wood Preserving Company, 804 Third street, Milwaukee, Wis., represented by J. Kornely, are offering to the trade a wood preserving paint which is named Presser's Preservatine. This paint is the original Carbonlineum. It is a German paint which has been in use over 20 years, and has been very successfully introduced in this country. The manufacturers state that it is an antiseptic impregnant and covering, and is particularly valuable for the preservation of wood and for keeping dry and sweet stone or brick walls that are subject to damp and moisture. The manufacturers claim that wood treated with this paint, whether below or above ground, whether in or out of water, will neither rot nor decay, the surface becoming almost as hard as stone. Preservatine gives wood a fine brown color, remains liquid for years, and is always ready for immediate use.

Wash Boiler Handle.

Berger Bros. Company, Philadelphia, Pa., are making the wash boiler handle here illustrated. It is referred to as very strong, the metal parts being well tinned and the appearance of the boiler enhanced by the style of handle used. It is made in two styles,

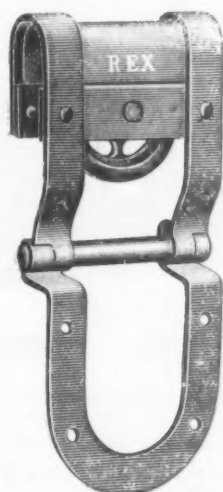


Wash Boiler Handle, Wood Center and Tinned Metal Sides.

one for round end boilers and the other for boilers having square ends. Correspondence with makers of tinware is solicited and, whenever desired, a free sample will be mailed for inspection.

The Rex Hinge Door Hanger.

The Stowell Mfg. & Foundry Company, South Milwaukee, Wis., have just brought out the Rex hanger, herewith illustrated, which is a barn door hanger with a hinge joint. This hanger is constructed of steel, ex-



Rex Roller Bearing Covered Hanger with Hinge Joints.

cept the wheel. It has steel roller bearings and is an easy running hanger on any length of track. Being a covered hanger it is storm proof. The hinge joint makes it flexible, so that it will not bind in swinging. An important feature of this hanger is the fact that it requires no special track, but is used with the company's regular

steel bracket track, thus avoiding the necessity of carrying another stock of track for this particular purpose.

Expansion Bolts.

The illustrations herewith relate to two of the later forms of expansion bolts put on the market by the Steward & Romaine Mfg. Company, 124 North Sixth street, Philadelphia, Pa., who manufacture an extensive line of expansion and toggle bolts for a great variety of purposes. Fig. 1 is an expansion bolt with pipe hanger attached, which is supplied to manufacturers of pipe hangers and other supporting hangers or rings, which are completed by the pipe hanger manufacturer as illustrated. Fig. 2 is another form of bolt which shows a reducing pipe socket attached in place of



Fig. 1.—Expansion Bolt with Pipe Hanger Attachment.

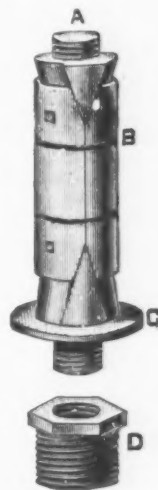


Fig. 2.—Expansion Bolt with Reducing Pipe Socket.

hanger. It will be seen that the end of the bolt opposite to the expansion end is threaded with gas pipe thread to fit into the socket. Another device of the same group not here shown is a hollow expansion bolt for electrical purposes, which permits the running of wires through the center of the bolt, the shank portion being made of tube iron, threaded to receive the expansion parts. This form is especially suitable for holding arc lights and electric fixtures, &c.

Iron Age Combined Hoe, Hill and Drill Seeder.

The Bateman Mfg. Company, Grenloch, N. J., have just added to their line of agricultural implements trademarked "Iron Age" the No. 6 Iron Age combined double and single wheel hoe, hill and drill seeder, shown herewith. One of its marked advantages, it is stated, is that it can be quickly converted into three distinct im-



Iron Age Combined Hoe, Hill and Drill Seeder.

plements—i. e., a double wheel hoe, single wheel hoe and hill and drill seeder. The two cultivator forms have all the working tools shown in the cut applicable to them, and are designed to perform the various operations necessary in cultivating a crop.

Rex Dividers and Calipers.

Brown & Sharpe Mfg. Company, Providence, R. I., together with other new tools, have recently put out a line of Rex spring dividers and outside and inside spring

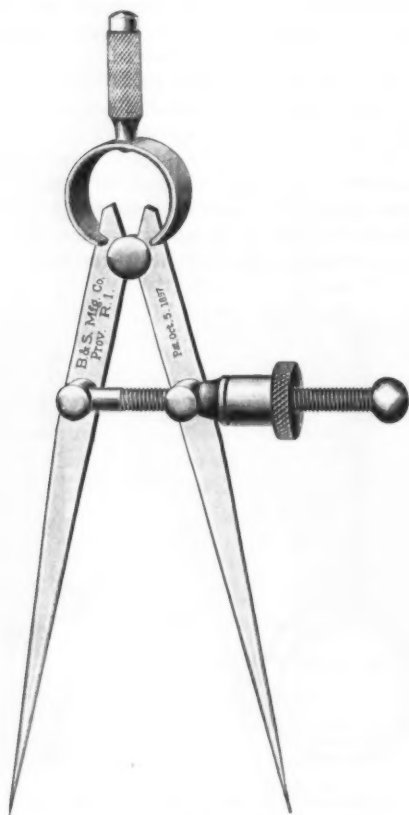


Fig. 1.—Rex Spring Divider.

calipers, two examples of which are here shown. This brand has been put on the market to satisfy a demand for a line of well made calipers and dividers more moderately priced than the Brown & Sharpe brand previously illustrated in these columns. They are referred

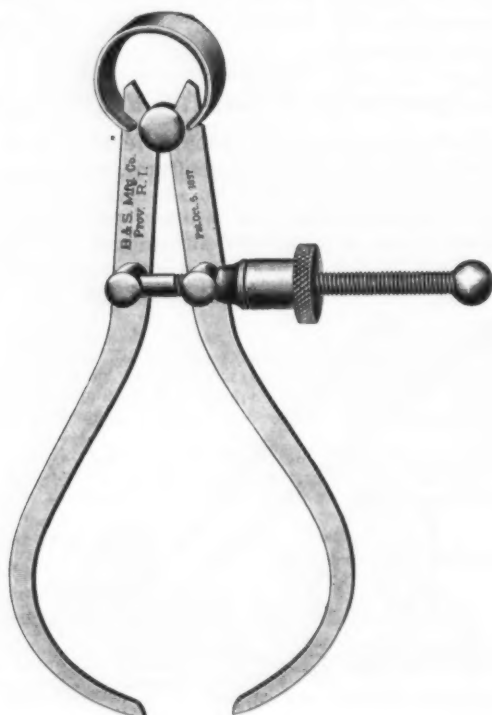


Fig. 2.—Rex Outside Spring Caliper.

to as being made with the same care in the essential details as is used in the production of the more expensive line. In this construction the nut has no loose pieces. The adjusting screw in the Rex brand is hard-

ened the same as in the Brown & Sharpe line. The Rex line is made in a total of 36 styles, 18 of which have the spring nut and the remainder solid nuts. The lengths in each of the three tools are 2½, 3, 4, 5, 6 and 8 inches. The company also offer a line of both outside and inside calipers with firm joints and tempered, not here illustrated, but having new characteristics, the sizes being 3, 4, 5, 6, 8, 10, 12, 14, 16, 18 and 24 inches length of leg.

The Elwood Ball Bearing Lawn Mower.

The new ball bearing lawn mower manufactured by the Elwood Lawn Mower Company, Elwood, Ind., is herewith illustrated. The manufacturers state that in designing and building this mower they had three points in view—namely, 1, to make the frame strong yet light and symmetrical; 2, to arrange the gearing and bearing so as to give the greatest possible speed to the reel consistent with the laws of mechanics and in order to make

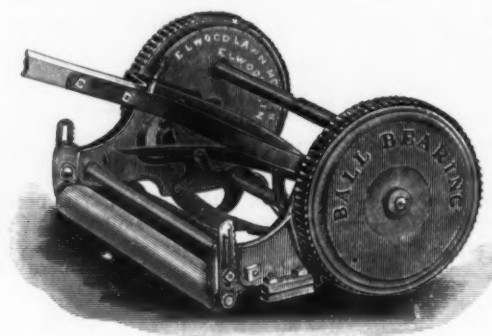


Fig. 1.—Elwood Ball Bearing Lawn Mower.

it easy running and insure the smooth and even cutting of the grass; 3, to place it before the trade at a price which would enable the mower to be sold to consumers at a price within the range of all. The illustration of the parts shows the side frame and working parts. In the center of the side frame appears the cup containing the steel balls for the shaft bearing. The part marked A 10 is the roller arm, which is adjustable, and permits the mower to be raised from the fractional part of an inch up to about 2 inches from the ground. The adjustment on this mower is so contrived that the reel shaft has a permanent bearing in the side frame, and the cutter bar is adjusted to the reel instead of the reel to the cutter bar. This is accomplished by means of two bolts on either side of the cutter bar. The part marked E 15 is the ball ratchet, which starts the reel in motion the

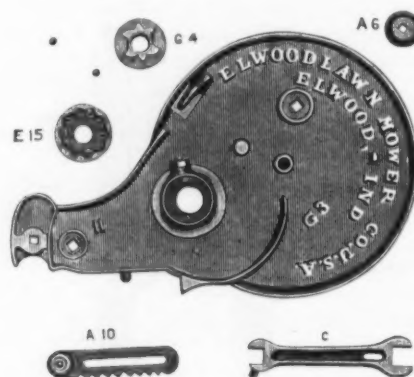


Fig. 2.—Side Frame and Parts.

instant the main wheels move forward and permits the reel to remain stationary when the mower is drawn backward. The driving wheels are 9 inches high and the four-blade reel is 5¾ inches in diameter. The company also manufacture other styles, named the Standard, the Improved High Grass and the Summit. The wheels of the Standard mower are of the same size as those of the Ball Bearing mower. The High Grass mower has wheels 10½ inches high and a four-blade reel 6¾ inches in diameter. The Summit mower has wheels 8 inches high and a three-blade reel 5½ inches in diameter.

Current Hardware Prices.

REVISED MARCH 4, 1902.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33½@33½@10% signifies that the price of the goods in question ranges from 33½ per cent discount to 33½ and 10 per cent discount.

Cut Prices.—In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 4, 1901), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Demerits, 7 doz. \$8.00... 33½@33½@10%
Jeth's... 10%
Hammann's—See Fasteners, Blind.

Window Stop—

Ives' Patent... 25¢
Taplin's Perfection... 50¢
Ammunition—See Caps Cartridges, Shells, etc.

Anvils—American—

Ames Hammer, wrought... 25¢
Buel Patent Trenton... 25¢
Eagle Anvil... 25¢
Hay-Budden, wrought... 25¢
Horseshoe brand, wrought... 25¢

Imported—

Peter Wright's... 0%@9%

Anvil, Vise and Drill—

Millers Falls Co., \$18.00... 20%

Apple Parers—See Parers, Apple, etc.

Aprons, Blacksmiths'—

Small Bros. Co.:
Lots of 1 doz... 25¢
Smaller Lots... 20¢
Lots of 8 doz... 30%

Augers and Bits—

Com. Double Spur... 70¢@70¢@10%
Boring Machine Augers... 70¢@70¢@10%
Car Bits, 15-in. twist... 60¢@60¢@10%
Jennings' Pattern... 50¢@10¢@50%
Auger Bits... 50¢@10¢@50%
Ford's Auger and Car Bits... 40¢@10%
Foster's Pat. Auger Bits... 30%
C. E. Jennings & Co.:
No. 10 10-in. H. Jennings' List... 40%
No. 10, R. Jennings' List... 50%
Russell Jennings... 25¢@10¢@25%
L'Amme's Car Bits 15-in. twist... 15¢@10¢@25%
Mayhew's Countersink Bits... 30%
Fug's Jennings' Pattern... 30%
Smith's Auger Bits... 60%
Smith's Bell Hangers' Bits... 50¢@10%
Smith's Car Bits, 15-in. twist... 60%
Wright's Jennings Bits (R. Jennings' List)... 60%

Bit Stock Drills—

Standard List... 66¢@65¢@5%

Expansive Bits—

Clark's small, \$18; large, \$25... 50¢@10%
Leavitt's Clark's Pattern, No. 1... 40%
Doz., \$26; No. 2, \$18... 50¢@10%
C. E. Jennings & Co., Steer's Pat... 33½%
Swan's... 60%

Gimlet Bits—

Common Double Cut, gro. \$2.55@2.75
German Pattern... gro. \$4.00@4.75

Hollow Augers—

Bonney Pattern, per doz. \$11.00@11.50
Ames... 25¢@10%
New Patent... 35¢@10%
Universal... 20%
Wood's Universal... 25%

Ship Augers and Bits—

Foot's... 40%
Smith's... 40%
C. E. Jennings & Co.:
L'Amme's... 15¢@10%
Watrous... 40%

Awl Hafts, See Hafts, Awl.

Awls—

Handled... gro. \$2.75@3.10
Unhandle, Shouldered, gro. 65¢@66¢
Unhandle, Patent... gro. 68¢@70¢
Pat. Awl:
Unhandle, Patent... gro. 51¢@50¢
Unhandle, Shouldered, gro. 65¢@70¢
Sawtooth Awl:
Handled, Common, gro. \$3.50@4.00
Handled, Socket, gro. \$1.50@1.80

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First Quality, factory brands... \$5.00
First Quality, jobbers' brands... \$5.75
Second Quality... \$5.00@5.45

Axle Grease—See Grease, etc.

Axles—

Concord, Loose Collar... 64¢@5¢
Concord, Solid Collar... 64¢@5¢
No. 1 Common... 54¢@4¢
No. 1 & Com. New Style... 54¢@4¢
No. 2 Solid Collar... 64¢@5¢
Nos. 11 to 15... 70¢@70¢@10%
Nos. 15 to 18... 75¢@75¢@10%
Nos. 19 to 22... 75¢@75¢@10%

Boxes, Axle

Common and Concord, not turned... 15¢@4¢@40%
Common and Concord, turned... 15¢@4¢@40%

Half Patent... 15¢@4¢@40%

Balances—Sash—

Caldwell new list... 50%
Foilman's... 60%

Spring—

Chatillon's:
Light 9oz. Balances... 40¢@10%
Straight Balances... 40%
Circular Balances... 50%
Large Dial... 80%
Pence... 50%

Barb Wire—See Wire, Barb.

Bars—Crow—

Steel Crowbars, 10 to 10 lb., per lb. 24¢@3¢

Beams, Scale—

Scale Beams, List Jan. 15, '91... 50¢@10%
Chatillon's No. 1... 30%
Chatillon's No. 2... 40%

Beaters—Egg—

Standard Co.:
No. 0 Rapid... \$4.50
No. 10 Dover Family Size... \$6.50
No. 15 Dover Hotel Size... \$9.00
Rival... \$9.00

Taplin Mfg. Co.:
No. 68 Improved Dover... \$6.50
No. 75 Improved Dover... \$7.50
No. 75-2 Imp'd Dover, Tin'd... \$8.00
No. 100 Improved Dover... \$8.00
No. 102 Improved Dover, Tin'd... \$9.50
No. 100 Improved Dover, Hotel... \$15.00
No. 152 Imp'd Dover, Hotel, T.D. 7.00
Lyon's Standard size... \$7.00
Wonder (S. S. & Co.)... \$7.50

Bellows

Blacksmith, Standard List, 70¢@70¢@10%
C. E. Jennings & Co., Blacksmith... 60¢@10%
C. E. Jennings & Co., Hand... 33½%

Blacksmiths—

Inch... \$1 \$2 \$3 \$4 \$5 \$6 \$7 \$8 \$9 \$10 \$11 \$12 \$13 \$14 \$15 \$16 \$17 \$18 \$19 \$20 \$21 \$22 \$23 \$24 \$25 \$26 \$27 \$28 \$29 \$30 \$31 \$32 \$33 \$34 \$35 \$36 \$37 \$38 \$39 \$40 \$41 \$42 \$43 \$44 \$45 \$46 \$47 \$48 \$49 \$50 \$51 \$52 \$53 \$54 \$55 \$56 \$57 \$58 \$59 \$60 \$61 \$62 \$63 \$64 \$65 \$66 \$67 \$68 \$69 \$70 \$71 \$72 \$73 \$74 \$75 \$76 \$77 \$78 \$79 \$80 \$81 \$82 \$83 \$84 \$85 \$86 \$87 \$88 \$89 \$90 \$91 \$92 \$93 \$94 \$95 \$96 \$97 \$98 \$99 \$100
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Molders—

Inch... 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Doz... \$6.75 \$7.25 \$7.50 \$8.00 \$8.50 \$9.00 \$9.50 \$10.00 \$10.50 \$11.00 \$11.50 \$12.00 \$12.50 \$13.00 \$13.50 \$14.00 \$14.50 \$15.00 \$15.50 \$16.00 \$16.50 \$17.00 \$17.50 \$18.00 \$18.50 \$19.00 \$19.50 \$20.00 \$20.50 \$21.00 \$21.50 \$22.00 \$22.50 \$23.00 \$23.50 \$24.00 \$24.50 \$25.00 \$25.50 \$26.00 \$26.50 \$27.00 \$27.50 \$28.00 \$28.50 \$29.00 \$29.50 \$30.00 \$30.50 \$31.00 \$31.50 \$32.00 \$32.50 \$33.00 \$33.50 \$34.00 \$34.50 \$35.00 \$35.50 \$36.00 \$36.50 \$37.00 \$37.50 \$38.00 \$38.50 \$39.00 \$39.50 \$40.00 \$40.50 \$41.00 \$41.50 \$42.00 \$42.50 \$43.00 \$43.50 \$44.00 \$44.50 \$45.00 \$45.50 \$46.00 \$46.50 \$47.00 \$47.50 \$48.00 \$48.50 \$49.00 \$49.50 \$50.00 \$50.50 \$51.00 \$51.50 \$52.00 \$52.50 \$53.00 \$53.50 \$54.00 \$54.50 \$55.00 \$55.50 \$56.00 \$56.50 \$57.00 \$57.50 \$58.00 \$58.50 \$59.00 \$59.50 \$60.00 \$60.50 \$61.00 \$61.50 \$62.00 \$62.50 \$63.00 \$63.50 \$64.00 \$64.50 \$65.00 \$65.50 \$66.00 \$66.50 \$67.00 \$67.50 \$68.00 \$68.50 \$69.00 \$69.50 \$70.00 \$70.50 \$71.00 \$71.50 \$72.00 \$72.50 \$73.00 \$73.50 \$74.00 \$74.50 \$75.00 \$75.50 \$76.00 \$76.50 \$77.00 \$77.50 \$78.00 \$78.50 \$79.00 \$79.50 \$80.00 \$80.50 \$81.00 \$81.50 \$82.00 \$82.50 \$83.00 \$83.50 \$84.00 \$84.50 \$85.00 \$85.50 \$86.00 \$86.50 \$87.00 \$87.50 \$88.00 \$88.50 \$89.00 \$89.50 \$90.00 \$90.50 \$91.00 \$91.50 \$92.00 \$92.50 \$93.00 \$93.50 \$94.00 \$94.50 \$95.00 \$95.50 \$96.00 \$96.50 \$97.00 \$97.50 \$98.00 \$98.50 \$99.00 \$99.50 \$100

Hand—

Inch... 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Doz... \$3.75 \$4.25 \$4.50 \$5.00 \$5.50 \$6.00 \$6.50 \$7.00 \$7.50 \$8.00 \$8.50 \$9.00 \$9.50 \$10.00 \$10.50 \$11.00 \$11.50 \$12.00 \$12.50 \$13.00 \$13.50 \$14.00 \$14.50 \$15.00 \$15.50 \$16.00 \$16.50 \$17.00 \$17.50 \$18.00 \$18.50 \$19.00 \$19.50 \$20.00 \$20.50 \$21.00 \$21.50 \$22.00 \$22.50 \$23.00 \$23.50 \$24.00 \$24.50 \$25.00 \$25.50 \$26.00 \$26.50 \$27.00 \$27.50 \$28.00 \$28.50 \$29.00 \$29.50 \$30.00 \$30.50 \$31.00 \$31.50 \$32.00 \$32.50 \$33.00 \$33.50 \$34.00 \$34.50 \$35.00 \$35.50 \$36.00 \$36.50 \$37.00 \$37.50 \$38.00 \$38.50 \$39.00 \$39.50 \$40.00 \$40.50 \$41.00 \$41.50 \$42.00 \$42.50 \$43.00 \$43.50 \$44.00 \$44.50 \$45.00 \$45.50 \$46.00 \$46.50 \$47.00 \$47.50 \$48.00 \$48.50 \$49.00 \$49.50 \$50.00 \$50.50 \$51.00 \$51.50 \$52.00 \$52.50 \$53.00 \$53.50 \$54.00 \$54.50 \$55.00 \$55.50 \$56.00 \$56.50 \$57.00 \$57.50 \$58.00 \$58.50 \$59.00 \$59.50 \$60.00 \$60.50 \$61.00 \$61.50 \$62.00 \$62.50 \$63.00 \$63.50 \$64.00 \$64.50 \$65.00 \$65.50 \$66.00 \$66.50 \$67.00 \$67.50 \$68.00 \$68.50 \$69.00 \$69.50 \$70.00 \$70.50 \$71.00 \$71.50 \$72.00 \$72.50 \$73.00 \$73.50 \$74.00 \$74.50 \$75.00 \$75.50 \$76.00 \$76.50 \$77.00 \$77.50 \$78.00 \$78.50 \$79.00 \$79.50 \$80.00 \$80.50 \$81.00 \$81.50 \$82.00 \$82.50 \$83.00 \$83.50 \$84.00 \$84.50 \$85.00 \$85.50 \$86.00 \$86.50 \$87.00 \$87.50 \$88.00 \$88.50 \$89.00 \$89.50 \$90.00 \$90.50 \$91.00 \$91.50 \$92.00 \$92.50 \$93.00 \$93.50 \$94.00 \$94.50 \$95.00 \$95.50 \$96.00 \$96.50 \$97.00 \$97.50 \$98.00 \$98.50 \$99.00 \$99.50 \$100

Bells—Cow—

Ordinary goods... 75¢@75¢@10%
High grade... 70¢@70¢@10%
Jersey... 70¢@70¢@10%
Texas Star... 50%

Door—

Abbe's Gong... 45%
Barton Gong... 55%
Home, R. & E. Mfg. Co.'s... 55¢@10%
Lever and Pull, Sargeant's... 40¢@40¢@10%
Yankee Gong... 35%

Hand—

Hand Bells, Polished... 60¢@5¢@60%
White Metal... 65¢@5¢@10%
Nickel Plated... 50¢@5¢@10%
Sulphur... 80¢@33½¢@10%
Silver Chain... 80¢@33½¢@10%

Miscellaneous—

Farm Bells... 10¢@9¢@40%
Steel Alloy Church and School... 60¢@10¢@60%

National Bell Foundry Co.

Superior Cast Steel Church and School Bells... 80¢@10¢@60%
Wilton & Hobbs Mfg. Co., Gongs... 70%

Belting—Rubber—

Agricultural (Low Grade)... 75¢@10¢@30%
Common Standard... 75¢@75¢@10%
Standard... 70¢@70¢@10%
Extra... 60¢@10¢@5%
High Grade... 80¢@10¢@5%

Seamless Stitches, Imperial... 65¢@5%

Boston Belting Co.:
Boston... 50%
Niagara... 60%

Leather—

Extra Heavy, Short Lap... 50¢@10¢@60%

Regular Short Lap... 60¢@60¢@5%
Standard... 60¢@10¢@5¢@10%
Light Standard... 65¢@70%
Leather Lacing... 60¢@10%

Cotton—

Rossendale-Roddaway B. & H. Co.:
Sphinx Brand... 80¢@10%
Durable Brand... 70%

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters... 40%
Stoddard's Lightning Tire Upsetters... 40¢@50%

Bicycle Goods—

John S. Long's Son's 1899 list:
Chain... 50%
Parts... 50%
Spokes... 50%
Tubes... 50%

Bits—

Auger, Gimlet, Bit Stock Drills, etc.—
See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Ad-

justers, Blind.

Blind Fasteners—See Fast-

eners, Blind.

Blind Staples—See Staples,

Blind.

Blocks—Tackle—

Common Wooden... 70¢@10¢@75%
Cleveland's... 60¢@10¢@70%
Ford's Star Brand Self Lubricating... 60¢@10%
Hollow Steel, Ford's Pat. Star Brand... 50¢@10%
Lane's Patent Automatic Look and Junior... 50¢@10%
Stowell's Novelty, Mal. Iron... 50¢@10%
See also Machines, Hoisting.

Boards Stove—

Zinc, Crystal, etc... 40¢@40¢@10%

Boles—

Gates, Molasses and Oil

Gauges
 Marling, Mortise, &c. 55¢ 10¢ 55¢ 10¢ 10¢
 Barrett's Comb. Roller Gauge. 55¢ doz. \$6.75 7.35
 Stanley R. & L. Co.'s Butt & Babbet Gauge. 50¢ 20¢ 10¢ 10¢
 Wire, Brown & Sharpe's. 50¢
 Wire, Morse's. 50¢
 Wire P. S. & W. Co. 30¢ 30¢ 10¢

Glimes - Single Cut
 Nail, Metal, Assorted, gro. \$1.50 1.80
 Spike, Metal, Assorted, gro. \$2.50 2.85
 Nail, Wood Handled, Assorted, gro. \$1.75 2.00
 Spike, Wood Handled, Assorted, gro. \$2.50 2.85

Glass, American Window
 Jobbers' List, Jan. 31, 1901.
 From store. 90¢ 10¢
 F. O. B. Factory, carload lots:
 Single strength. 90¢ 10¢ 7¢
 Double strength. 90¢ 10¢ 10¢

Glue - Liquid, Fish
 List A, Bottles or Cans, with Brush. 75¢ 10¢ 80¢
 List B, Cans (1/2 pts., pts., qts.). 35¢ 10¢ 45¢
 List C, Cans (1/2 gal., gal.). 50¢ 10¢ 55¢
 International Glue Co. (Marrin's). 40¢ 10¢ 50¢

Glue Pots - See Pots, Glue
Grease, Axle
 Common Grade. 90¢ 50¢ 60¢
 Dixon's Everlasting. 10¢ 50¢ 55¢
 Dixon's Everlasting, in box. 10¢ 50¢ 55¢
 Snow Flake. 10¢ 50¢ 55¢

Grindstones
 Bicycle Emery Grinder. 90¢ 50¢ 60¢
 Bicycle Grindstones, each. 10¢ 50¢ 55¢
 Pike Mfg. Co.
 Improved Family Grindstones. 90¢ 50¢ 60¢
 per each, per doz. 90¢ 50¢ 60¢
 Pike Mower, Knife and Tool. 90¢ 50¢ 60¢
 Grinder, each. 90¢ 50¢ 60¢
 Velox Ball Bearing, mounted, Angle Iron Frames. 90¢ 50¢ 60¢

Guards - Snow
 Cleve and Wire Spig Co.:
 Galv. Steel 1000. 90¢ 50¢ 60¢
 Copper 1000. 90¢ 50¢ 60¢

Gun Powder - See Powder
Hack Saws - See Saws
Hafts - Axl
 Peg Patent, Leather Top. 90¢ 50¢ 60¢
 Peg Patent, Plain Top. 90¢ 50¢ 60¢
 Sewing, Brass Ferrule. 90¢ 50¢ 60¢
 Saddlers', Brass Ferrule. 90¢ 50¢ 60¢
 Peg, Common. 90¢ 50¢ 60¢
 Brad, Common. 90¢ 50¢ 60¢

Halters and Ties
 Cover Mfg. Co.:
 Web. 90¢ 50¢ 60¢
 Jute Rope. 90¢ 50¢ 60¢
 Sisal Rope. 90¢ 50¢ 60¢
 Covert's Saddlery Works:
 Web and Leather Halters. 90¢ 50¢ 60¢
 Jute and Manila Rope Halters. 90¢ 50¢ 60¢
 Jute, Manila and Cotton Rope Ties. 90¢ 50¢ 60¢
 Sisal Rope Ties. 90¢ 50¢ 60¢

Hammers
Handled Hammers
 Heller's Machinists'. 90¢ 50¢ 60¢
 Heller's Farriers'. 90¢ 50¢ 60¢
 Magnet Tack, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 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1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 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Shovels and Spades—
 Association list. 40¢
 Note.—Common Plains Back Shovels—

Sieves and Sifters—

Hunter's Imitation, gro. \$11.00 @ \$11.50
Buffalo Metallic Blued, S. S. & Co., # gr.:
4 & 16 16x18 18x20
12, 20 18x30 \$15.00
F. J. Meyers' Mfg. Co.:
Ellipsoidal, # gr. \$11.00
Electric Light, # gr. \$11.00
Hunter's Genuine, # gr. \$12.50
No Name, Hunter's, # gr. \$11.00
Standard, # gr. \$11.00
Shaker (Barber's Pat.) Flour Sifters,
doz., \$2.00 90x

Sieves, Tin Rim—

Per dozen
Mesh 14 16 18 20
Black full size, \$0.95 58 1.00 1.10
Plated, full size, \$1.05 1.03 1.10 1.20
Black, scant, \$0.75 .80 .85

Sieves, Wooden Rim—

Nested, 10, 11 and 12 inch.
Mean 18, Nested, doz. \$0.65 @ 75
Mean 20, Nested, doz. .75 @
Mesh 24, Nested, doz. .90 @ 1.00

Sinks—

Cast Iron—
Standard list 65x10 @ 70x10
NOTE.—There is not entire uniformity
data used by jobbers.

Wrought Steel—
New Era, Galv'd and Enamelled, 70x55
New Era, Galv'd, 50x105
L. & G. Mfg. Co., Galvanized, 50x105
L. & G. Mfg. Co., Enamelled, 50x105

Sinks, Wagon—

Cast Iron, 70x10 @ 75x10
Malleable Iron, 40x10 @ 50x10
Steel, 40x10 @ 50x10

Slates—

Factory Shipments.
"D" Slates, 50x10 @ 10x10
Unexcelled, etc., Noiseless Slates, 60x10 @ 8x10
Victoria, etc., Noiseless Slates, 60x10 @ 7x10 @ 5x10

Wire Bound, 50x10 @ 5x10
Web Hinge, 50x10 @ 5x10

Slaw Cutters—See Cutters.

Slicers, Vegetable—

Starling, # 2.00 83x

Snaps, Harness—

German, 40x10 @ 40x105

Covert Mfg. Co.:—

Veruy, 45x25
High Grade, 45x25
Jockey, 40x25
Trojan, 40x25
Yankee, 40x25
Yankee, Roller, 40x25

Covert's Sundry Works:—

Crown, 60x
German, 60x
Model, 60x
Triumph, 60x

W. & T. Mfg. Co.:—

Aristocrat, 40x105
Empire, 50x25
German, 40x25
National, 40x25
Perfect, 40x25
Clipper, 50x25
Champion, 40x25
Security, 40x25
Victor, 50x25

Onida Community:—

Solid Steel, 60x55x105
Solid Wire, 65x10 @ 65x105
Bargen's Patent Guarded, 60x105

Snaths—

Scythe, 50x10 @ 50x105

Snips, Tinnners'—See Shears.

Soldering Irons—

See Irons, Soldering.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—

Silver Plated—

Good Quality, 50x10 @ 60x105

Cheap, 40x10 @ 60x105

International Silver Co., 40x105

1847 Rogers Bros. and Rogers & Hamilton, 40x105

Rogers & Bro., William Rogers Eagle Brand, 50x105

Anchor, Rogers Brand, 60x105

Wm. Rogers & Son, 60x105

Simoon L. & Geo. H. Rogers Co., 60x105

Silver Plated Flat Ware, 60x105

No. 17 Silver Plated Ware, 60x105

Miscellaneous—

German Silver, 60x10 @ 60x105

Cattaraugus Cutlery Co., 30x

Yukon Silver, 30x

Simoon L. & Geo. H. Rogers Co., 30x

German or Nickel Silver, Special list 1 & 10x

Tinned Iron—

Teas, per gro. 45 @ 5.00

Tables, per gro. 50 @ 5.10

Spring—

Door—

Gem (Coll), 20x

Star (Coll), 30x

Torrer's Rod, 39 in., # doz. \$1.10 @ 1.25

Victor (Coll), 50x10 @ 10x

Carriage, Wagon, &c.

14 in. and Wider:

Black or 1/4 Bright, lb. 44x

Bright, lb. 64x

Painted Seat Springs:

1 1/2 x 2 1/2 and smaller, per pr. 45 @ 55

1 1/2 x 2 1/2, per pr. 50 @ 55

1 1/2 x 2 1/2 and narrower, per pr. 75 @ 80

Cliff's Springs:—

Dolter, 40x

Seat, per pair, 40x

Pole, per pair, 40x

Springers, Lawn—

Enterprise, 25 @ 30x

Philadelphia No. 1, # doz. \$13; No. 2, \$15; No. 3, \$24.

Squares—

Nickel plated, List Jan. & 1901

Steel and Iron, 75x75 @ 65x

Rosewood Hill Try Square and T-Bevels, 80x100 @ 100x70x

Iron Hdl. Try Squares and T-Bevels.

40x10 @ 40x100 @ 100x
Dixton's Try Sq. and T-Bevels, 60x100
Winterbottom's Try and Miter, 40x10 @ 40x100 @ 100x

Squeezers—

Lemon—

Wood, Common, gro., No. 0, \$5.95

@ \$5.50; No. 1, \$6.50 @ \$5.50.

Wood, Porcelain Lined:—

Cheap, doz. \$2.00 @ 2.75

Good Grade, doz. \$3.00 @ 3.50

Tinned Iron, doz. \$0.75 @ 1.25

Iron, Porcelain Lined doz. \$3.90 @ 3.85

Jennings' Star, # doz. \$1.85 @ 1.90

Staples—

Barbed Blind, # doz. \$0.60 @ 0.75

Electricians', Association list, 80x10 @ 10x105

Fence Staples, same price as Barbed

Wire. See Trade Report.

Poultry Netting, Staples, per lb. \$1.40 @ 1.50

Grand Crossing Tack Co.'s list, 80x10 @ 10x

Steels, Butchers'—

Dick's, 30x

Foster Bros., 30x

Hartzell Cutlery Co., 40x

C. & A. Hoffmann's, 40x

Steelyards, 25 @ 25x10x

Stocks and Dies—

Blacksmiths', 40x10 @ 10x

Gardner Die Stocks, larger sizes, 50x

Green River, 25x

Lightning Screw Plate, 25x

Little Giant, 25x

Rece's New Screw Plates, 25 @ 30x

Curtis Reversible Ratchet Die Stock, 25x

Stone—

Saythe Stones—

Chicago Wheel & Mfg. Co.:—

Gem Corundum, 10 inch, \$3.00 per

gro. 12 inch, \$10.00

Pike Mfg. Co. 1901 list:

Black Diamond S. S., # gro. \$13.00

Lamotte S., # gro. \$11.00

White Mountain S. S., # gro. \$9.00

Green Mountain S. S., # gro. \$6.00

Extra Indian Pond S. S., # gro. \$7.50

No. 1 Indian Pond S. S., # gro. \$7.00

No. 2 Indian Pond S. S., # gro. \$4.50

Leader Red End S. S., # gro. \$4.50

Balance of 1901 list 80x

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:

Gem Corundum Oil, Double Grit, 50x

Gem Corundum Oil, Single or Double

Grit, 50x

Gem Corundum Slips, 55x

Gem Corundum Razor Hones, 55x

Pike Mfg. Co. 1901 list:

Arkansas Stone, No. 1, 3to5 in., \$3.50

Arkansas Stone, No. 1, 5to10 in., \$3.50

Arkansas Stone, No. 1, 10to15 in., \$4.00

Lily White Washita 4 to 8 in., 60x

Rosy Red Washita 4 to 8 in., 60x

Washita Stone, Extra, 4 to 8 in., 50x

Washita Stone, No. 1, 4 to 8 in., 40x

Washita Stone, No. 2, 4 to 8 in., 30x

Lily White Slips, 60x

Rosy Red Slips, 60x

Washita Slips, Extra, 60x

Washita Slips, No. 1, 70x

India Oil Stones (entire list), 25x

Hindustan No. 1, Regular, # doz. 10x

Hindustan No. 1, Small, # doz. 10x

Aze Stones (all kinds), 35x

Turkey Oil Stones, ex. 5 to 8 in., # doz. 30x

Queer Creek Stones, 4 to 8 in., 30x

Queer Creek Slips, 40x

Sand Stone, 40x

Belgian, German and Swast Razor

Hones, 40x

Natural Grit Carving Knife Hones, 40x

Quick Edge Pocket Knife Hones, 40x

Mounted Kitchen Sand Stone, 40x

doz. \$1.50

Tanite Mills:—

Emery Oil, # doz. \$3.00 50 @ 60x

Stoners—

Cherry—

Enterprise, 25 @ 30x

Stops, Bench—

Miller's Falls, 15 @ 10x

Morrill's, # doz. No. 1, \$10.00 50x

Mor. II, No. 2, \$12.50 50x

Stops, Window—

Ives' Patent, 35 @ 35x

Stove Boards—

See Boards, Stove.

Stove Polish—See Polish, Stove.

Strainers, Pump—

Diamond Joe Pump Strainers, per doz. 75x

Straps, Box—

Cary's Universal case lots, 20 @ 10x

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 55 @ 65x

Socket, doz. \$1.75

Strops, Razor—

Smith & Hemenway Co., 70x

Stuffers, Sausage—

Enterprise Mfg. Co., 25 @ 25x75x

National Specialty Mfg. Co., list Jan. 1, '01, 30x

Tacks Brads, &c.—

List Jan. 15, '99.

Carpet Tacks, American 90x24 @ 1x

American Cut Tacks, 90x20 @ 1x

Swedes Iron Tacks, 90x20 @ 1x

Swedes Upholsterers' Tacks, 90x10 @ 1x

Gimp Tacks, 90x50 @ 1x

Lace Tacks, 90x10 @ 1x

Trimmers' Tacks, 90x25 @ 1x

Looking Glass Tacks, 70x10x

Bill Posters' and Railroad Tack, 90x10 @ 1x

Hungarian Nails, 80x10x

Common and Patent Brads, 80x10x

Trunk and Closet Nails, 80x10x

NOTE.—The above prices are for

Straight Weights. An extra 5% is given
Star Weights and an extra 10% on
Standard Weights.

Miscellaneous—

Double Point Tacks, 90x6 or 7 tens

Steel Wire Brads, R. & E. Mfg.

Co.'s list, 50x10 @ 60x

See also Nails, Wire.

Tanks, Oil—

Emerald, S. S. & Co., 30-gal. \$3.30

Emerald, S. S. & Co., 60-gal. \$4.00

Queen City S. S. & Co., 0-gal. \$3.50

Queen City S. S. & Co., 60-gal. \$4.25

Tapes, Measuring—

American Asses' Skin, 40x10 @ 50x

Patent Leather, 40x10 @ 50x

Steel, 40x10 @ 50x

Chesterman's, 25 @ 25x55

Eddy's Steel, 40x10 @ 55x

Eddy's Metallic, 33x @ 33x55

Kouff & Lamer Co., Steel and Metallic,

Lower list, 1899, 35x

Lufkin's Steel, 33x @ 35x

Lufkin's Metallic, 30x @ 30x55

Teeth Harrow—

Steel Harrow Teeth, plain or head-

ed, base per lb. \$1.40

Thermometers—

Cylinder or Gas Pipe.....	.....
Extra Heavy.....	.....
No. 9 Pipe, Bright.....	.....
Bindley Automatic.....	.....
Boardman's.....	.....
Cosco's Genuine.....	40x10x3.5
Cosco's "Mechanics".....	40x10x1.8
Donohue's Engineer.....	40x10
Eagle.....	40x10
Elgin Wrenches.....	.....
Extra Heavy Wrench Pipe Saws.....	.....
Gem Pockets.....	.....
Hercules.....	.....
Knife Handle, Machinists' (W. & A.).....	.....
Case lots.....	.....
Less than case lots.....	.....
Improved Pipe (W & B).....	.....
Solid Handles, P.S. & B.....	.....
Stillsons.....	.....
Union.....	.....
Union Chain.....	.....

Wholesale Coods—

Staples, Hooks, &c., list March 17
 1898..... 90¢ to 10¢

Yokes Neck—

Coverd Saddlery Works, Trimmings..... 1.00 each
 Coverd Saddlery Works, Neck Yokes..... 75¢

Yokes, Ox, and Ox Bowls—

Fort Madison's Farmers & Freightmen.....
 List 25¢

Zinc—

Sheet..... 75¢ to 1.00

Linseed, Oily, boiled.....	55	94
Linseed, State and West a raw, oil	55	94
Mustard, for Calcutta seed.....	75	97
Lard, Prime.....	75	97
Lard, Extra No.....	90	72
Lard, No. 1.....	83	94
Cotton-seed, Crude.....	83	94
Cotton-seed, Sumner Yellow,		
prime.....	41	94
oil grades Summer Yellow.....	40	94
Sperm, Crude.....	71	94
Sperm, Natural Spring.....	74	97
Sperm, Bleached Spring.....	75	97
Sperm, Natural Winter.....	75	97
Sperm, Bleached Winter.....	75	97
Whale, Crude.....	60	93
Whale, Natural Winter.....	43	94
Whale, Bleached Winter.....	43	94
Menhaden, Crude, Sound.....	59	94
Menhaden, Light Strained.....	59	94
Menhaden, Bleached Winter.....	84	94
Menhaden, Bleached Winter.....	84	94
Cocoonut, Ceylon.....	74	94
Cocoonut, Cochin.....	74	94
Cod, Domestic.....	89	94
Cod, Newfoundland.....	89	94
Red Plains.....	89	94
Red Sardinia.....	89	94
Olive, Italian, blue.....	54	94
Neatsfoot, prime.....	57	94
Palm, prime, Lagos.....	54	94

Mineral Oils.

Black, 80 gravity, 35 to 30 cold		
test.....	94	
Black, 90 gravity, 15 cold test.....	102	94
Black, summer.....	102	94
Cylinder, light filtered.....	145	94
Cylinder, dark filtered.....	114	94
Paraffine, 903-907 gravity.....	119	94
Paraffine, 908 gravity.....	119	94
Paraffine, 983 gravity.....	92	94
Paraffine, red, No.....	134	94

In small lots 44 to 45

Remittances should be made by draft, payable to the order of DAVID WILLIAMS COMPANY, on any banking house in the United States or Europe, or by P. O. Money Order on New York. When these cannot be obtained, postage stamps of any country will be received.

Newspapers or Booklets in any part of the world may obtain *The Iron Age* through the American News Company, New York, U. S. A.; The International News Company, New York, U. S. A., and London, England; or The San Francisco News Company, San Francisco, Cal., U. S. A.

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CURRENT METAL PRICES.

MARCH 5, 1902.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL— Bar Iron from Store—	
Red Iron:	
1 to 1 1/2 in. round and square.....	\$ 2.00@2.10
1 1/2 to 4 in. x 1/2 to 1 in.	\$ 2.10@2.20
4 to 14 in. x 1/2 to 1 in.	\$ 2.30@2.40
Rods—3/4 and 1 1/2 round and square, # B	\$ 2.30@2.40
Angles:	
3 in. x 1/2 in. and larger.....	\$ 2.50
3 to 8 1/2 in. x 3/4 in.	\$ 2.50@2.80
1 1/2 to 3 in. x 1/2 in.	\$ 2.50@2.80
1 to 1 1/2 in. x 3/4 in. and thicker....	\$ 2.30@2.40
1 to 1 1/2 in. x 3/4 in.	\$ 2.40@2.50
1 to 1 1/2 in. x 3/4 in.	\$ 2.50@2.60
1 1/2 to 3 in. x 3/4 in.	\$ 2.90
1 1/2 to 3 in. x 3/4 in.	\$ 2.90
1 1/2 to 3 in. x 3/4 in.	\$ 3.00
1 1/2 to 3 in. x 3/4 in.	\$ 4.00
Tees:	
1 in.	\$ 2.00
1 1/2 in.	\$ 2.00
1 1/2 in. and larger.....	\$ 2.70@3.00
Beams.....	\$ 2.50@3.00
Channels, 3 in. and larger.....	\$ 2.50@3.00
Bands—1 1/2 to 3 in. x 3/4 in. No. 8.....	\$ 2.40
"Burden's Best" Iron, base price.....	\$ 3.15
Burden's "H. B. & S. Iron, base price.....	\$ 3.15
"Uster".....	\$ 3.60
Norway Bars.....	\$ 3.75@4.25
Norway Shapes.....	\$ 4.00@4.50

Merchant Steel from Store—	
Bessemer Machinery.....	\$ 3.00 to 2.10
Too Calk, Tire and Sleigh Shoe.....	\$ 2.00@2.50
Best Cast Steel, base price in small lots.....	7 1/2
Best Cast Steel Machinery, base price in small lots.....	8

Soft Steel Sheets--			
1/4 inch.....	2.20¢	No. 14.....	3.00¢
3/8 inch.....	2.30¢	No. 16.....	3.10¢
No. 8.....	2.40¢	No. 18.....	3.20¢
No. 10.....	2.70¢	No. 20.....	3.50¢
No. 12.....	2.90¢	No. 22.....	3.60¢